Under attack

Not satisfied exploiting operating systems and Web servers, a new survey says hackers have found fresh targets this year. **PAGE 8.**

Slick as ICE

Cisco, Microsoft are developing Interactive Connectivity Establishment (ICE) products that let VoIP calls cross firewalls without compromising security. **PAGE 19.**

Change control

Keeping an accurate, timely record of network inventory, operating systems and device configurations is no longer a Herculean task for Citigroup. **PAGE 27.**

NETWORKWORLD

The leader in network knowledge ■ www.networkworld.com

November 28, 2005 ■ Volume 22, Number 47

TAKE OUR ADVICE:

TOP TIPS FOR NETWORK EXECS

WHEN IT COMES TO FREE ADVICE, savvy network executives know to consider the source. That's why we dug deep to find the best tips on tackling emerging and existing technologies, on managing vendor contracts and relationships, and on advancing your network career to the next level. And we culled our insights from a most reliable source — your peers.

Hospitals' patch fears on the wane

BY ELLEN MESSMER

In the year or so since conflict between hospitals and manufacturers over the security of networked medical devices went public, much has changed for the better.

Following a *Network World* series last year about the potentially dangerous situation posed by unpatched patient-care equipment on hospital networks, the U.S. government issued new guidelines to manufacturers that clarified their responsibilities and many vendors changed their approach to securing products, a difference some customers say has been significant.

"The threats have abated," says Dave McClain, information security manager at Community Health Network, an organization in Indianapolis that operates five hospitals. "A year ago the vendors were saying they wouldn't support the contracts if we went ahead with patching."

Imaging, radiological and cancer-care equipment made by GE Healthcare, Siemens, Agfa, Kodak's Health Imaging Group, Philips Medical Systems and others is often networked and includes commercial off-the-shelf software. Hospitals have been in a bind because device manufacturers — often unable to keep pace with new worms, viruses and other security threats — traditionally prohibited them from applying software updates to their medical equipment, threatening to cancel contracts or legal action.

While it might be easy to suggest that healthcare organizations should refrain from tying medical devices to their networks, having

See Medical, page 14

Online retailers ready for holiday crush

BY ANN BEDNARZ

While the Friday after Thanksgiving is the traditional start of the holiday shopping season, online retailers are gearing up for heavier traffic beginning today — a day some industry watchers have dubbed "Cyber Monday."

The reason is it's not until everyone returns to work after the holiday weekend that the serious online buying begins.

"The following Monday is actually even more important than Friday. It's probably the busiest day," says Bill Brown, director of e-commerce and demand generation at Alienware, which makes PCs and accessories for gaming enthusiasts and other power users.

See Retail, page 8

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NETWORK WORLD

News

COOLTOOLS

Gateway's high-definition, 21-inch monitor lets you display two letter-sized documents next to each other. Page 36.

TAKE OUR ADVICE:

TOP TIPS FOR NETWORK EXECS

We culled the best advice from a most reliable source — your peers.

The best advice I ever got
Network professionals, industry watchers and vendor executives share the tips that helped them get ahead. **Page 40**

What works and why
IT experts offer their advice on top technologies, including VoIP, WAN services, SOA and security. **Page 44**

When to upgrade
Insiders share their experiences about equipment life cycles. **Page 49**

Something for nothing
Where to find and how to take advantage of freeware and open source applications. **Page 51**

Indiana University goes wireless
University network exec shares experiences and challenges of rolling out wireless across two campuses. **Page 53**

Taking charge
Tips and tricks for tackling your responsibilities as a manager of people, projects and vendors. **Page 56**

■ **CONTACT US** Network World, 118 Turnpike Road, Southborough, MA 01772; **Phone:** (508) 460-3333; **Fax:** (508) 490-6438; **E-mail:** nwnews@nww.com; **STAFF:** See the masthead on page 8 for more contact information. **REPRINTS:** (717) 399-1900

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Cool Tools: Best tech holiday gifts
With a little inspiration from a classic game show, Senior Editor Keith Shaw highlights gifts from our annual Cool Yule Tools Holiday Gift Guide that are sure to please your friends, family or you. **DocFinder: 9951**

Cool Yule Tools Holiday Gift Guide
We've reviewed more than 100 high-tech products for the home and office that you'll want to give to your friends, family or you. **DocFinder: 9834**

NetworkWorld.com at 10
Join us as we look back at the events of the past 10 years in networking and tell us where the network is headed. **DocFinder: 9641**

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NEWSbits

Server sales spike, analysts report

■ For the first time, Microsoft Windows was the leading operating system in new servers, as the worldwide server market grew 8.1% in the third quarter, IDC said last week. After a long period focused on cutting costs and buying servers just to run current applications, companies are once again investing strategically in systems to handle future workloads, says Matt Eastwood, an IDC analyst. Sales of Windows systems accounted for 36.9% of all server revenue in the quarter, vs. 31.7% for Unix and 11.5% for Linux. Server revenue grew faster than IDC's projection, which was for 6% growth. Also last week, Gartner reported that worldwide server revenue grew 5.6% during the third quarter. Gains in sales of servers costing less than $25,000 led the upward trend, according to the research companies.

Suits filed against Sony BMG

■ Sony BMG Music Entertainment's fight over its XCP copy-protection software shifted to the courts last week as Texas Attorney General Greg Abbott and lawyers from the Electronic Frontier Foundation moved to bring civil suits against the entertainment giant. Texas is the first state to sue Sony over its distribution of flawed copy-protection software, while the EFF, a digital rights watchdog group in San Francisco, said that it would bring a class-action lawsuit against Sony in California. The Texas lawsuit accuses Sony of violating the state's 2005 anti-spyware law by distributing the software on 52 of the company's music titles this year. Further lawsuit details are available at www.networkworld.com, DocFinder: 9967. The EFF's lawsuit will seek unspecified compensation for XCP customers and will draw attention to a second copy-protection product that ships with Sony CDs, called MediaMax.

Deal falls through in CSC buy

■ Lockheed Martin has apparently lost interest in outsourced IT provider Computer Sciences Corp. The IT services firm, which specializes in government contracts, had been eyed by defense giant Lockheed Martin, but *The Wall Street Journal* has reported that talks have broken down. That news sent CSC's stock — which had jumped 20% during the last month as a result of the buyout talks — tumbling early last week to $48 from about $54 days before. CSC was asking $65 per share, or about $12 billion. According to some reports, the price tag proved to be too much for Lockheed and a group of private equity investors who were negotiating the CSC buy. It's unclear whether there are other bidders, and CSC did not immediately return calls for comment. But analysts say potential customers should keep track of where CSC is headed, because new management could affect services.

{quote of the week}
{quote of the week}
{quote of the week}

"We all work for Google, though we may not get paid. We improve Google's algorithm to the extent we use" the search engine.

Seth Goldstein, CEO, Root Markets, speaking at the Symposium on Social Architecture, Cambridge, Mass.

"Election day in Washington has a new twist! Enter Left - Right - Left - Right - B - A - Start - Start to cast an extra vote for the candidate of your choice."

J.D. Roman of Harper Woods, Mich., wins this week's honors in our latest Weekly Caption Contest. Check back every Monday for the start of a new round.
www.networkworld.com/weblogs/layer8

TheGoodTheBadTheUgly

Spam fight song. Several anti-spam organizations and vendors are uniting to fight spam by running a music video contest (www.networkworld.com, DocFinder: 9969). FixingEmail.org and iFILM are among the outfits looking for the best short music video featuring a three-chord punk-pop song called "Spam Free or Die." The winner will receive $10,000 and have the video aired on national radio and television in addition to several Web sites, the promoters say.

< Shoppers beware. Despite the increasing size of the online shopping market, one in four U.S. consumers won't shop online during this holiday season because of concerns over buying goods online, according to a new survey. A major concern of consumers when shopping online is the fear that their personal information will be sold to a third party, according to the survey, which was commissioned by the Business Software Alliance and conducted by Forrester Custom Consumer Research. It surveyed 1,099 consumers. The survey found 79% of people worried about such a sale of their information. Another big concern was identity theft (74%), and consumers were also worried about spam, credit card fraud and computer viruses, the survey found.

FBI warning. We're not saying the FBI isn't after you, but at least in this case you can breathe a sigh of relief. The agency last week warned the public not to be fooled by a new e-mail scheme in which message recipients are told their Internet use has been monitored by the FBI.

Cisco buys IP PBX mgmt. software

■ Cisco last week followed up its mega-acquisition of cable-box maker Scientific-Atlanta with a quieter deal, buying software for managing IP PBX deployments from Digital Fairway, a maker of carrier and enterprise voice- and video-management software. The acquisition of Digital Fairway technology gives Cisco software that could help make VoIP rollouts simpler. IP phone and telco circuit management is a top concern for large companies rolling out VoIP. Digital Fairway makes software that lets carriers manage, bill for, and provision VoIP and video services for business and residential customers. The company also makes software for enterprises to manage telecom circuits and VoIP services from carriers. Its products include management software for automating the setup of IP phones and converged applications for business end users. Cisco is paying $15.25 million for the intellectual property and software assets.

AT&T revives AT&T Wireless brand

■ AT&T will resurrect the AT&T Wireless brand name for its Cingular-based wireless service. Cingular is a jointly owned venture of AT&T — the company formed from last week's closure of SBC's acquisition of AT&T — and BellSouth. Both carriers, though, have the right to rebrand the service according to the contractual terms of their Cingular relationship.

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Cyberattacks shift to apps, net devices

BY ROBERT MCMILLAN AND CARA GARRETSON

After years of writing viruses and worms for operating systems and software running on Internet servers, hackers have switched their focus to network devices and applications in 2005, a new report says.

Attackers have targeted back-up software and even the security software designed to protect computers, according to the 2005 SANS top-20 list of the most critical Internet security vulnerabilities, says Alan Paller, director of research with the SANS Institute, a training organization for computer security professionals.

"There has been a 90-degree turn in the way attackers are coming after you," Paller says. Most organizations have adopted means to automatically patch vulnerabilities in operating systems, he says, but not in applications. "Those applications don't have automated patching, so we're back to the Stone Age."

By exploiting flaws in network gear, hackers are finding their way onto corporate networks. "Other more-sophisticated attackers found they could use vulnerabilities in network devices to set up listening posts where they could collect critical information that would get them into the sites they wanted," he says.

This new focus on client applications and network products has happened because so many server-side and operating-system bugs have been fixed, says Gerhard Eschelbeck, CTO and vice president of engineering with Qualys, and a contributor to this year's list. "A lot of the low-hanging fruit has been identified now," he says. "We really reached a tipping point earlier this year, where people started to look aggressively at client-side applications."

Security researchers also started looking at vulnerabilities in network products, thanks in part to a controversial presentation by security researcher Michael Lynn at this year's Black Hat 2005 conference in Las Vegas. Cisco sued Lynn after he discussed security problems in the Internetwork Operating System software used by Cisco's routers.

This is the first year that network products have appeared on the SANS list, with Cisco vulnerabilities taking three of the 20 slots. The list includes nine common application vulnerabilities, two Unix problems and six Windows issues, all of which "deserve immediate attention from security professionals," according to SANS.

One way to prevent such security flaws is to demand that vendors deliver hardened products to begin with, Paller says. For example, the U.S. Air Force gave Microsoft a large sum of money to develop a secure version of Windows that now runs at two sites.

"The Air Force decided it couldn't afford to keep buying broken software from Microsoft," he says. "We think that action is the herald of what will one day .... turn the tide, with the government leading by example. It doesn't take much of that to turn vendors into security vendors."

The SANS top-20 list, published annually since 2000, is compiled by representatives from a variety of computer-security organizations, including the U.S. Computer Emergency Response Team, the British government's National Infrastructure Security Co-ordination Centre and the SANS Internet Storm Center. The list is designed to give security professionals a quick sense of the industry's consensus on which commonly targeted security vulnerabilities require their most immediate attention. It has traditionally focused on Windows and Unix vulnerabilities, as well as problems with some server-side applications.

The SANS list is available at www.sans.org/top20/.

McMillan is a correspondent with the IDG News Service.

Retail

continued from page 1

Alienware aims certain Web deals at post-Thanksgiving shoppers, but many of its promotional e-mails don't get read until people get back to work after the holiday, Brown says. "We have as many people shopping at work as we do at home. We're prepared for a lot of visit activity beginning Monday."

People at work are among the key contributors to the post-Thanksgiving online shopping surge, according to Shop.org, a retail association and division of the National Retail Federation (NRF). Shop.org and BizRate Research paired up on a study that found 37% of consumers plan to use Internet access at work to browse or buy gifts online this holiday season.

Shopping habits

Among nearly 2,000 online shoppers, **37%** said they plan to use Internet access at work to browse or buy gifts online this holiday season, according to research from retail association Shop.org.

Looking back, 77% of online retailers saw substantial sales increases last year on the Monday after Thanksgiving, Shop.org says. In anticipation of this year's onslaught, retailers have spent months gearing up for the season that can make or break fiscal expectations.

Pendleton Woolen Mills selected new order management and fulfillment software last year, but deliberately waited until after the 2004 holiday rush to begin putting the new technologies in production. It went live with the first phase of its CommercialWare implementation, for its catalog business, on Jan. 15, followed by rollouts for its Web operations in June and retail stores in September. Pendleton Woolen Mills manufactures textiles and apparel, which it sells wholesale as well as direct to consumers through its stores, online and catalog operations.

"I always think about how many fires we can fight at one time," says David Anderson, information services manager for the Portland, Ore., company. "Bringing all that up at one time is very difficult, so we brought it up one big piece at a time."

Ebates, too, got started early fine-tuning its Web site for the holiday rush. The online shopping portal used survey technology from WebSurveyor to poll visitors and find out how they used the site, and what types of coupons, rebates and other promotions are most important to them.

Ebates took data gleaned from the surveys, which it started running in April, and used it to fine-tune a Web site redesign, says Markus Mullarkey, senior vice president of sales and marketing at the San Francisco company.

"We did a site redesign on Oct. 1, which was deliberately done pre-holiday. It was important for us to get some of the feedback prior to the site redesign," Mullarkey says. "Now it's ready for crunch time."

Some retail analysts are optimistic about the 2005 holiday season. NRF last week upped its holiday sales forecast to $440 billion, a 6% gain over the 2004 season. In September it had forecast a 5% holiday sales gain.

On the online front, comScore Networks estimates that consumer spending at U.S. Internet sites (excluding travel sites) will exceed $19 billion during the 2005 holiday season, up 24% over last year.

Not all the news is rosy. Security concerns will keep some shoppers offline this season, according to new data from the Business Software Alliance (BSA).

Among 1,099 online U.S. consumers, 24% said they won't shop online this holiday season because of Internet security concerns. The majority (84%) say some retailers have not done enough to protect their consumers, BSA reports. Consumers' biggest security concerns have to do with personal information being sold to a third party (79%), identity theft (74%), spam (72%), credit card fraud (67%) and computer viruses (60%). ■

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Alcatel plays catch-up with 10G switches

BY PHIL HOCHMUTH

Alcatel this week is to launch two switches targeted for corporate-backbone and data-center deployments, where Gigabit Ethernet links are either aggregated from stacks of LAN-edge switches in wiring closets or from racks of Gigabit-enabled servers.

The OmniSwitch 9700 switch is a 10-slot chassis, while the 9800 switch includes 18 slots. When configured with two redundant management modules and two fabrics, the boxes can hold as many as six and 14 service blades, respectively.

Both switches include IPv4 and IPv6 support on all port interfaces. The switch software also allows the device to tunnel IPv4 and IPv6 links together, allowing disparate networks running different versions of IP to connect. The devices come standard with full Layer 3 routing and complete protocol support — OSPF, RIP versions 1 and 2; and BGP.

The new OmniSwitches also support advanced virtual LAN (VLAN) configurations and multicast deployments, which can be useful when running redundant clusters of servers in a data center, with non-clustered machines. Alcatel's switch software allows for Layer 2 multicast broadcasting of packet streams to one or more VLANs; this allows some servers attached to the switch to receive the replicated packets, while others do not.

(See a graphic of how Alcatel's Layer 2 VLAN multicasting technology works at www.networkworld.com, DocFinder: 9964.)

The new OmniSwitches are upgrades from previous OmniSwitch 8000 series chassis, and offer more switching capacity than the previous boxes.

The switches support standard QoS at Layer 2 with 802.1p traffic prioritization. The switches can map Layer 3 Type of Service and DiffServ QoS settings to Layer 2 802.1p priority queues, which allows prioritized traffic from different networks to maintain QoS settings, Alcatel says.

Analysts say the products do not break new ground in terms of speeds and feeds. However, they do fill a void in Alcatel's high-end switching portfolio, and bring it up to the same level as competitors 3Com, Cisco, Nortel, Extreme, Foundry and others.

"It was a hole in [Alcatel's] portfolio, and it's an important thing for them to have," says Burton Group analyst Daniel Golding, regarding high-density 10 Gigabit Ethernet. (Listen to an analysis of Alcatel and the 10G Ethernet market by Golding. See DocFinder: 9965.)

Industry watchers say 10G switch shipments are growing, as Dell'Oro Group expects shipments of 10G ports to grow from 174,000 ports in 2005 to 854,000 ports in 2006.

But this is still a small fraction of the market, which was around 276 million ports in 2004. In other words, analysts say, 10G is still a technology answer without a problem to solve.

"The only thing that's really going to push the need for 10G Ethernet . . . are applications like desktop video," Burton Group's Golding says. "This is something that historically, IT departments have not been pushing."

Bandwidth drivers

However, drivers for more bandwidth could come as laptop computers, such as the latest Apple iBook, start shipping with built-in video cameras, and Gigabit ports become a standard feature on desktops.

"If you have cameras in every laptop, people may starting doing video conferencing from the edge, the same way instant messaging took off," Golding says. "Right now that's the best possibility ... for an application that might drive [10G Ethernet]."

The OmniSwitch 9700 and 9800 are expected to be available in December, starting at $4,000 for a bare chassis and $24,000 for a chassis with redundant management and switch fabric blades. Gigabit ports cost about $583, and 10G ports cost about $7,240 with optics included. ■

Switching up

How Alcatel's new 10G switch stacks up against competitors.

Vendor	Product	Ports		
		Fiber 1G	10G	Copper 1G
3Com	Switch 8800	24	288	288
Alcatel	OS 9800	32	384	384
Cisco	Catalyst 6500	28	336	336
Extreme	Black Diamond	48	480	480
Foundry	BigIron RX	64	384	384
Force10	E1200	224	1,260	336
Nortel	8600	24	240	240

Microsoft opening up document format

BY JOHN FONTANA

Microsoft last week weighed in on the debate over open-document file formats, saying it would seek standardization of the XML formats it is developing for the forthcoming Office 12, as well as provide tools to convert existing Office documents to the new technology. The company also said it will not seek legal action against companies that build the formats into their products.

For users, Microsoft is trying to take the shackles off its desktop Office applications using XML. The company aims to separate the data from the applications so the data can be shared with back-end systems, such as ERP and CRM, or injected into business-process workflows. With the standardization efforts, Microsoft hopes the open formats will ease user concerns over long-term storage, management and retrieval of data.

The company and a group of partners, including vendors such as Intel and users such as Barclays Capital, said it would submit its Office Open XML document format to the European Computer Manufacturers Association (ECMA). Microsoft and its partners then hope ECMA will submit its work to the International Organization for Standardization.

Earlier this year, Microsoft announced Open XML would be the default format for Word, Excel and PowerPoint in Office 12.

"From an enterprise standpoint, you don't want to store documents in a proprietary format," says Chris LeTocq, an analyst with Guernsey Research. "Who knows what you might be charged to read it 10 years from now."

LeTocq says Microsoft realizes it has to have an answer. "They have to be able to claim some degree of openness."

Microsoft already offers open and royalty-free licenses and documentation for the XML Reference Schemas in Office 2003, but recent events seem to be pushing it to go further.

The company is feeling pressure after a decision earlier this year by the commonwealth of Massachusetts to adopt a standard open-file format called OpenDocument by 2007 and efforts by IBM, Sun, Google and others to rally industry support for the XML-based format.

OpenDocument was developed by the Organization for the Advancement of Structured Information Standards (OASIS), which has submitted its format to the ISO for standardization, the same organization Microsoft is targeting.

And Microsoft has a history of turning to ECMA for standardization efforts, including submitting its C# programming language at a time when Java was gaining popularity.

Microsoft says its Open XML move is not a reaction but a strategy.

"Standardization was part of our plan with Office 12 [formats] from the beginning," says Alan Yates, director of information worker strategy at Microsoft. "It was painful during the Massachusetts debate not to be able to say where we were headed." Yates said Microsoft was waiting for the Office 12 beta release and next month's ECMA meeting, as well as getting partners lined up.

The first beta of Office 12 was shipped two weeks ago. A second beta is planned for March, with final shipment slated for the second half of 2006. The beta includes add-ons for Office 2000, 2003 and XP so those applications can read and write the new OpenXML formats. Users can open documents created in older Office programs, say Office 97, and convert them into a current format and then into an OpenXML document. The beta includes a batch-converter tool.

Yates says OpenDocument and Open XML cannot be compared.

"OpenDocument is not focused on the billions of documents and bringing them into the Open XML future, it is not focused on the Office 12 level of functionality, not focused on using documents as transports of data within organizations. There are multiple differences," Yates says.

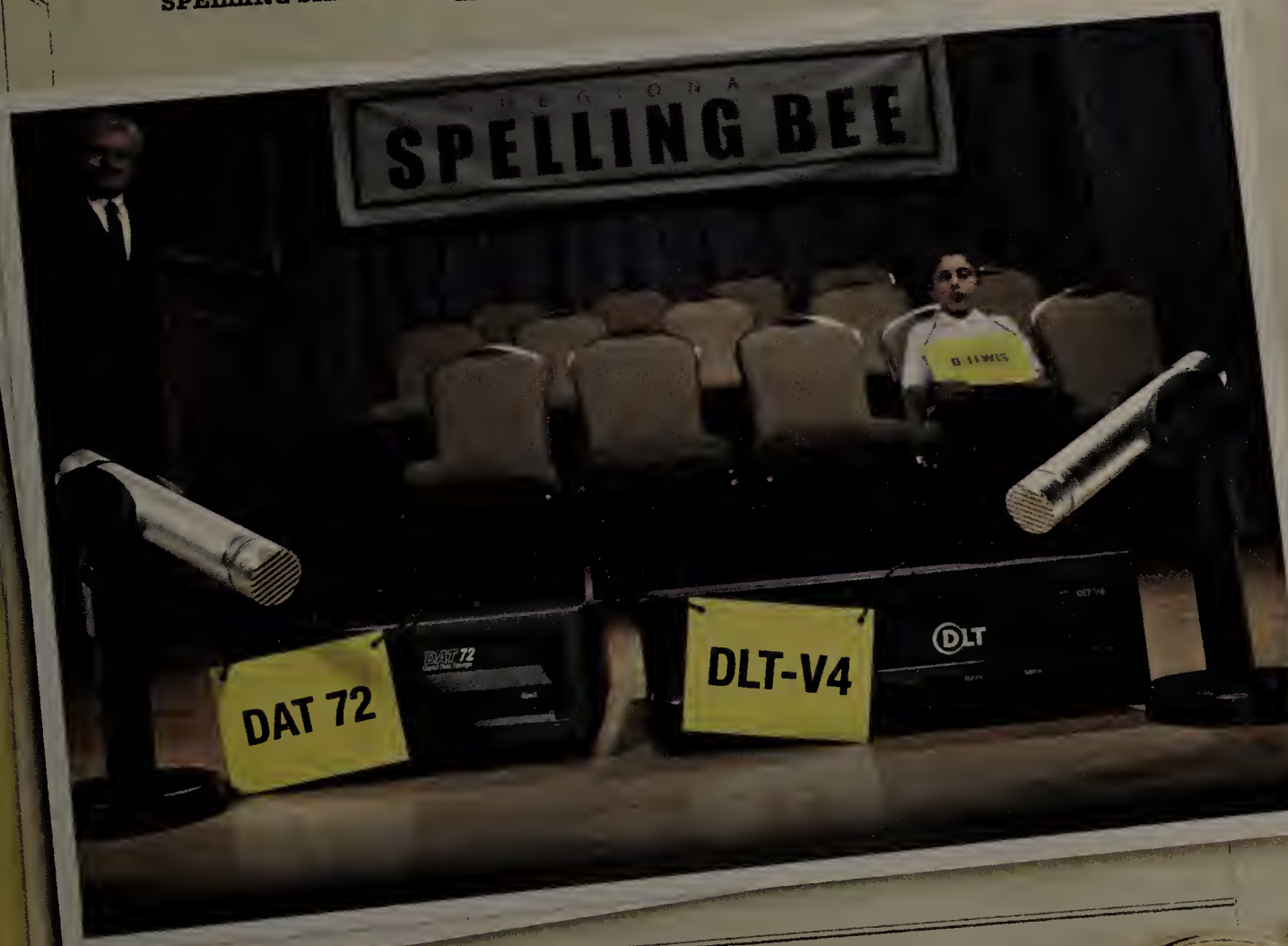
Observers say the proof of Microsoft's intentions will be revealed in the details of the license for the formats. Microsoft said last week that Open XML will be offered with an "irrevocable covenant not to sue anyone for use of our XML format specifications."

Regardless, some say that having choices is the real issue.

"We encourage moves toward more openness and more interoperability, which this announcement is, and it is a positive move for Microsoft's customers," says Chris Darby, the general manger of the XML products division at Intel. But Darby says that "open" is a tough word to define and that customers will ultimately decide what is best for their needs. Intel also has been supportive of the file format efforts of OASIS. ■

DLT-V4 vs. DAT 72

	DAT 72	DLT-V4	NOTES
CAPACITY:	☐	☑	4X THE CAPACITY
SPEED:	☐	☑	3X FASTER
PRICE PER GB:	☐	☑	2X BETTER
SPELLING SKILLS:	☐	☐	



A recent field test placed the DLT-V4 and DAT 72 tape drives head-to-head in a local spelling bee. Both were given the word "sesquipedalian," which neither even attempted to spell. Possibly due to stage fright. As for data backup abilities, the winner was clear. **The new DLT-V4 has 4x the capacity, 3x the speed, and 2x better price per gigabyte than DAT 72.** It includes DLTSage™ diagnostic management software and DLT*ice*™ archival WORM functionality. Plus, it uses the same media as its predecessor, the DLT VS160. How do we know? It's been tested. **Visit DLTtape.com**

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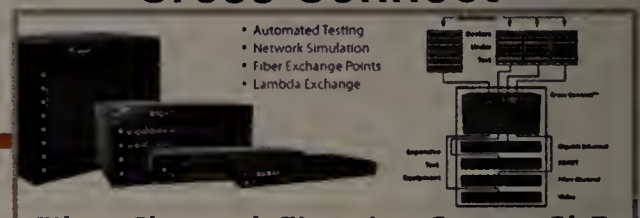

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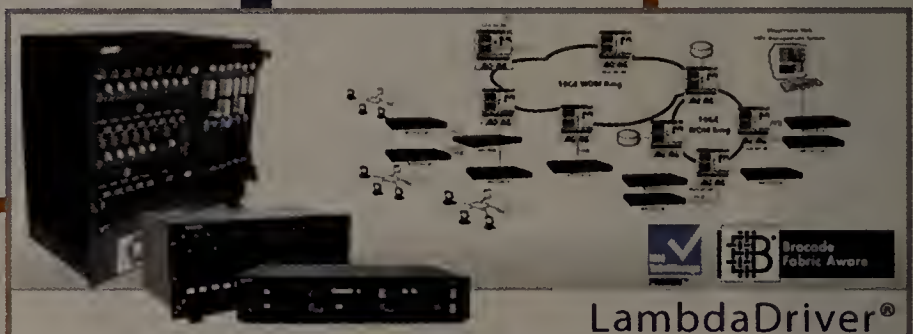

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MRV

Medical

continued from page 1

systems interconnected can pay dividends in terms of management and data sharing.

For years, manufacturers had been telling customers that they couldn't provide timely patches because the U.S. regulatory body in charge of medical-device safety, the Food and Drug Administration (FDA), had to approve the software fixes first in a lengthy inspection process.

But inquiries last year to the FDA division in charge, the Center for Devices and Radiological Health, revealed that the FDA had no such rules. This shattered a myth that had been at best a misunderstanding and at worst a deceit.

Since then, much of the change in the dialogue among manufacturers and hospital IT staff can be attributed to FDA guidance. The agency has made clear it isn't opposed on principle to customers patching medical devices.

"There is no FDA legal requirement that would prevent the user from installing patches without prior approval from the device manufacturer," says John Murray, the FDA's software and electronic-records compliance expert.

In its "Guidance for Industry: Cybersecurity for Networked Medical Devices Containing Off-the-Shelf Software," the FDA told manufacturers that they "bear the responsibility for the continued safe and effective performance of the medical device, including the performance of the off-the-shelf software that is part of the device."

The document also states: "The need to be vigilant and responsive to cybersecurity vulnerabilities is part of your obligation."

The FDA's guidelines require manufacturers to perform software validation and risk analysis on patches. But the FDA made clear that it does not require an extensive pre-market review for a device implementing a software patch, though the agency wants vendors to report regularly to the FDA on the process.

The agency will take a closer look if the software patch affects how the medical device treats diseases, or if it affects device effectiveness or safety.

The FDA told medical-device manufacturers they should establish formal business relationships with commercial software vendors and validate software changes to medical devices to address cybersecurity vulnerabilities.

And "because of the frequency of the cybersecurity patches," says the FDA, manufacturers should come up with a "single cybersecurity maintenance plan."

The plan could allow the manufacturers to delegate tasks to customers, the software vendor or third parties, the FDA said.

Community Health Network's McClain says relations with device manufacturers have improved noticeably on patching issues. He consults with all his vendors, including GE Medical, Agfa and McKesson, when the hospital decides to patch medical devices. This is especially true on the large, cumulative patches that Microsoft has released periodically over the past year.

"If there's an urgent patch [where a breach could be opened] without it, we let the vendors know we're doing it," he says.

Other organizations, including the U.S. Department of Veterans Affairs, are more comfortable adhering to a policy that a customer make no modification to a medical device, unless the manufacturer "explicitly supports the modification," says Steven Wexler, biomedical engineer at the agency.

Wexler has helped the agency and the VA hospitals craft a policy that emphasizes network defenses, such as intrusion-detection and prevention and network segmentation of medical devices through virtual LANs (VLAN).

Some IT professionals say manufacturers are sometimes part of the problem and there's a long way to go to improve the intrinsic security of medical devices.

"Vendors have introduced viruses into the network," says Bill Bailey, enterprise architect in ProHealth Care, Milwaukee. Bailey has advocated that the FDA play a stronger role in policy for networked medical devices.

Although Bailey says he perceives "no sea change" in security for medical devices over the past year, he does see substantial progress in certain areas.

He notes that a few vendors, including GE Medical and Agfa, are exploring ways to monitor devices such as cardiac monitors and imaging systems so patch updates for Windows or Unix might be applied remotely.

Bailey points to specialized gateways that both manufacturers are testing at ProHealth to monitor patient-care equipment for security purposes. "The gateway sits onsite to act as a Layer 3 security bridge," he says.

While such specialized medical-device gateways might one day become common, Bailey also sees a downside: They would be another device to monitor.

Manufacturers say they're striving to find common ground with customers and to improve security in medical devices.

Agfa, for one, maintains that the FDA's cybersecurity guidelines have helped to promote a more positive dialogue.

"Prior to that, there was a cloud hanging over the whole thing," says Tim Artz, Agfa's director of global government programs.

The FDA's guidance prompted Agfa to undertake a broad assessment of its products. "The risk of applying patches is very extremely low," Artz says, adding Agfa is exploring ways it might automate security updates to devices that "would be done in line with customers' policies."

Even before the FDA guidelines appeared, Agfa had been involved in an Air Force-run program to make sure imaging devices, which can share patient data remotely, would be kept patched and maintained according to Air Force procedures. That effort, which required extensive testing of Agfa teleradiology machines by the Air Force, earned the vendor's equipment the "Certificate of Networthiness" from the Air Force.

Last summer the FDA eyed the certificate program for medical devices as a process it might espouse for broader use. However, that effort is not currently being pursued, according to the FDA.

Philips Medical Systems and GE Medical also want to make it easier and faster to apply patches, but worry the patching process could have repercussions if it eludes their control.

As far as policy goes, Philips "warns" against any modification of its devices "unless modifications are authorized in writing by Philips," says Nick Mankovich, director of product security.

Philips, which validates software patches, typically has its own service staff apply them to customer equipment. There are no set time frames for this.

Mankovich says Philips will let customers install patches and anti-virus protection on some devices, but only with specific authorization from the vendor.

Philips has focused on "hardening" commercial operation systems and applications used in its ultrasound and tomography scanners, as well as cardiac monitoring and cardiovascular systems, so that unused services and ports are closed and internal firewalls are incorporated into the devices.

Mankovich notes that Philips, along with other manufacturers, is working on ways to patch that will be "designed, validated and verified for use by customer staff where feasible."

Device manufacturers see the dark side of patching, particularly the disruptions a patch can cause when it's flawed or interferes with a machine's operation.

"All patches are guilty until proven innocent," says Scott Bolte, GE Healthcare product-security program manager. "An unexpected side effect of a patch, one that disrupts normal operations, is annoying on a general-purpose system such as your desktop. The same side effect on a medical device is intolerable."

Because medical systems are sold internationally, device makers periodically get together to hash out answers on a global basis.

One important forum for doing this is the Joint Security and Privacy Committee, which unites three regional industry groups: the National Electrical Manufacturers Association in the United States, the European Coordination Committee of the Radiological and Electromedical Industry and the Japan Industries Association of Radiological Systems.

Stephen Vastagh, the secretary for the Joint Security and Privacy Committee in Washington, D.C., points to the difficulties in managing IT security risks associated with medical devices, because the regions in which devices are manufactured and operated define the regulatory requirements.

Vastagh says the "incredible diversity of devices, ranging from on- or in-the-body devices to MRI scanners to multi-facility information systems," makes it difficult to have standards.

Vastagh says healthcare providers and manufacturers have to work together to balance information flow and cost issues with IT security requirements.

"Of course, we know that there are those who remain frustrated with the fact that medical devices cannot be patched with the same speed as the desktop computing environment," Vastagh says. "This is the reality of having people's safety and lives connected directly to medical devices. If your life depended on OpenOffice or Photoshop or Quicken working perfectly after every operating-system patch and upgrade, you might reasonably be more cautious before setting AutoUpdate to 'on' — even more cautious if your children's and neighbors' lives were in the mix." ■

Resource guide

Here are more sources of information about protecting networked medical devices.

Resources

U.S. Food and Drug Administration
"Guidance for Industry: Cybersecurity for Networked Medical Devices Containing Off-the-Shelf Software" (www.networkworld.com, DocFinder: 9958)

Healthcare Information and Management Systems Society
Medical Device Security (DocFinder: 9959)

U.S. Department of Veterans Affairs
Medical Device Isolation Architecture Guide (DocFinder: 9960)

National Electrical Manufacturers Association Web site
"Break Glass — An Approach to Granting Emergency Access to Healthcare Systems" (DocFinder: 9961)
"Patching Off-the-Shelf Software Used in Medical Information Systems" (DocFinder: 9962)

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Software watches service providers

BY DENISE DUBIE

ComBrio, which for the past year has delivered appliances to help service providers manage customer networks, is turning the tables somewhat and giving network managers a tool for managing service providers.

The company this week is introducing Virtual Service Infrastructure (VSI) Software Suite 2.0, a Linux server-based program designed for installation in corporate data centers or remote offices.

The software lets companies set policies on how service providers connect to their networks. Using VSI's Service Control feature, customers could require their service providers to connect to their networks via ComBrio's product. Customers need to leave specific ports available.

Jeff Kaplan, managing director at consulting firm Thinkstrategies, says the VSIenterprise add-on to VSI Service Control could give network managers a simplified approach to managing outsourcers and a comprehensive audit trail of network access for regulatory compliance purposes.

Charles O'Donnell says VSI Service Control could help him deliver service over a consistent and secure connection to customers and VSIenterprise could give customers a better way to manage their outsourced jobs. The vice president of managed services for Liebert Global Services, a maintenance and on-site repair company for computer systems in Columbus, Ohio, says he is field testing both products and expects to put them into production in 2006.

"The ComBrio gateway allows us to have a single point of communication that is restricted to our specific devices, and that gives customers control over access, without requiring a change in their firewall policies," O'Donnell says.

VSI Service Control starts at about $30,000. The first license of VSIenterprise is free and then costs $3,000 per service provider. ■

Cisco finally bets big on video

BY JIM DUFFY

Cisco's video ambitions until now have been anticlimactic in scope and market penetration.

But the company's $6.9 billion acquisition of Scientific-Atlanta changes all that. Not only is it Cisco's biggest video bet, but it gives the vendor instant leadership in a market on which it has had little previous impact.

Cisco has made a few small acquisitions over the past 10 years, including the purchase of Precept Software in 1998, which brought serial entrepreneur Judy Estrin to Cisco, but those moves have had little effect in the market or in Cisco's top and bottom lines (see graphic).

The Yankee Group says the worldwide market for corporate video is just less than $1 billion this year, up about 33% from the $750 million in 2003.

"If I were thinking of the top-five video vendors, I wouldn't put Cisco in there," says Zeus Kerravala of The Yankee Group. "They do sell some video infrastructure. It's pretty good stuff, but Cisco's been much more on the voice bandwagon for the past couple of years than video."

"They do OK, I wouldn't call it a large business for them by any stretch of the imagination," says IDC analyst Abner Germanow. "But video is an application that has a lot of potential."

Cisco's past enterprise-video initiatives were more for positioning itself for a potential market, as opposed to trying to attain a leadership position in a burgeoning market, says Gerry Kaufhold, a principal analyst at In-Stat.

"The timing was somewhat premature," he says. "Corporate video is just now becoming a popular item. Cisco knew all along, and correctly, that video would be part of the endgame, so they were positioning themselves to be in there."

The key to corporate video is video capture and edit, Kaufhold says. Cisco's early forays into video were aimed more at video distribution over Ethernet, he says.

But it wasn't until IPTV began to storm the consumer market two years ago that Cisco found itself pulled into a larger video role by default. Cable companies and telcos are relying on Ethernet to provision switched video into households and service specific edge routers to manage subscriber profiles and service characteristics. As the world's leading Ethernet switch and IP router vendor, the video game came to Cisco.

Cisco concurs that momentum in video started when industry activity in IPTV began to ramp up. But the company puts that timeframe more at three to five years vs. two.

"Certainly, activities in the video market ... is at least the last three years or so, while the industry has been aware of and talking about IPTV," says Peter Clarke, director of Cisco's Service Exchange framework. "We've certainly been involved in video for a significantly longer [time], but IPTV specifically, probably about five years."

Cisco says more than 10 million video-on-demand subscribers are receiving services from Cisco networks.

"They've made a big dent in the cable market, building the core networks for cable companies," Germanow says. "As cable companies have built out large data networks, it's essentially been a greenfield opportunity for the data-networking industry."

With telcos spending billions of dollars to run fiber closer to homes for IP switched video and interactive video on demand, and with cable companies upgrading their infrastructures to stay a step ahead of the telcos, Cisco's push to control the set-top box in your living room was a natural progression. The set-top box is expected evolve to become the broadband router controlling digital entertainment in the networked home.

Video is now one of Cisco's $1 billion-a-year advanced-technology initiatives and a critical driver of Cisco's future growth. As CEO John Chambers said last week in announcing the Scientific-Atlanta deal: "Video is an integral part of our strategy that must be a core competency."

On the corporate side, video is coming into its own, analysts say. It chews up a lot of bandwidth, which means companies will be looking at substantial network upgrades if they require video applications for their workers. ■

Lights, camera . . . action!

Cisco's video endeavors leading up to the Scientific-Atlanta buy:

Year	Event	Impact
1998	Acquired Precept Software for $84 million.	Precept CEO Judy Estrin became Cisco CTO — Precept's IP/TV application is still offered but has had a negligible effect on the market.
2001	Unveils IP/VC 3500 videoconferencing product line.	Products still offered — market effect not available.
2004	Unveils uMG9800 line for cable companies.	Products still offered — market effect not available.
	Adds video phone features to CallManager VoIP software.	Video could ride CallManager's enterprise leadership position.
	Partners with Interactive Video Technologies for business video solution.	Still offered — market effect not available.

Intradyn rolls out e-mail archiving appliance

BY DENI CONNOR

Intradyn last week introduced an e-mail archiving appliance that captures messages and stores them on hard disk, optical media or tape for compliance purposes.

ComplianceVault06 Enterprise sits on a Gigabit Ethernet network and captures all of a company's e-mail and stores it on the appliance's disk or on a Sony AIT drive.

"The new Intradyn offering is interesting because it's an appliance and so relatively easy to implement compared to in-house software/server solutions that require more deployment effort," says Michael Osterman, principal and senior analyst for Osterman Research. "It's also aimed at the midsize and large-enterprise market, not just the small-business market, as many appliances often are. Archiving will become the norm at some point, and appliances might help organizations come to that realization a bit sooner."

The appliance features a search function that lets customers query the system using a variety of techniques for e-mails to meet the search criteria. The search results then can be exported to a file, CD, e-mail or hard copy for use by compliance officers or auditors.

Every access to the appliance is tracked by date, time and user. Data also can be encrypted using Advanced Encryption Standard 256-bit encryption and protected with RAID 5 disk redundancy.

Only one other vendor, StorServer, manufactures an e-mail archiving appliance. Vendors such as EMC and Veritas offer software only, which customers must integrate with storage hardware.

The rack-mountable ComplianceVault06 is available in disk capacities ranging from 2T to 8T bytes. It works with Microsoft Exchange, Lotus Notes and virtually any IMAP or POP3 e-mail system. Available in 2U and 3U (3 1/2-inch- and 5 1/4-inch-high) versions, the appliances start at $20,000. ■

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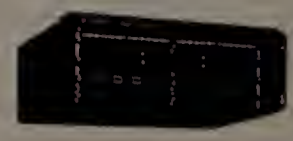

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NET INFRASTRUCTURE

Short Takes

■ **The Liberty Alliance Project,** a consortium of companies and organizations that works on standards for federated identity, last week announced that products from several major companies have passed recent interoperability tests using the specification it backs. The Liberty Alliance promotes Security Assertion Markup Language 2.0, a Web services and federated identity specification. Earlier this month, several vendors — including IBM, NEC and NTT Communications — submitted products and services for anonymous testing and conformance with SAML 2.0, the organization said. Federated identity means allowing access to information among organizations using secured networks. One such feature is single sign-on, in which the entry of a single user name and password can be used to access several linked Web sites.

■ **GFI,** a security and messaging vendor, last week released **LANguard Network Security Scanner 7.0,** which includes anti-virus and anti-spyware scanning to ensure that the most recent definition files are installed on user machines. NSS 7.0 also features multilingual patch management, support for Linux, a vulnerability feature that includes recommended action and tracking of unauthorized services. The software also scans wireless access points and USB ports to detect those services. The patch-management features support automatic download and deployment in various languages across Microsoft software. NSS prices start at $495.

■ **RSA Security** has announced RSA Card Manager, Windows server-based software that acts as a repository and administrative distribution point for issuing smart cards and USB tokens. Card Manager, which costs $30,000 for 1,000 users, provides for the administration of multiple authentication technologies. RSA Card Manager is expected to ship next month.

VoIP scheme gets big backers

BY PHIL HOCHMUTH

Cisco, which sells the most IP telephony gear, and Microsoft, which seeks a greater corporate VoIP role, recently agreed to work together to add capabilities in software that lets IP voice traffic more easily run across firewall-protected networks.

The two companies will support and implement Interactive Connectivity Establishment (ICE) technology, which is a proposed IETF standard for allowing VoIP calls to traverse firewalls without compromising security. At issue is network address translation (NAT), which is one of the most basic methods for protecting client and other network-based devices behind a firewall. NAT distributes internal IP addresses to nodes and then translates the addresses to publicly routable IP addresses when traffic traverses the Internet. This can prevent a VoIP call from being set up because NAT makes each IP endpoint in a VoIP connection handshake seem unreachable to the other.

Many companies have worked around NAT/VoIP compatibility issues by tunneling IP voice traffic through VPN connections. This is common for remote users with softphone clients and laptops, who connect to a corporate IP PBX through a home firewall or a hotel broadband connection with a VPN link. Site-to-site VoIP setups also use tunneling, virtual LAN (VLAN) segments over VPNs or point-to-point links to connect VoIP calls to offices protected via NAT firewalls.

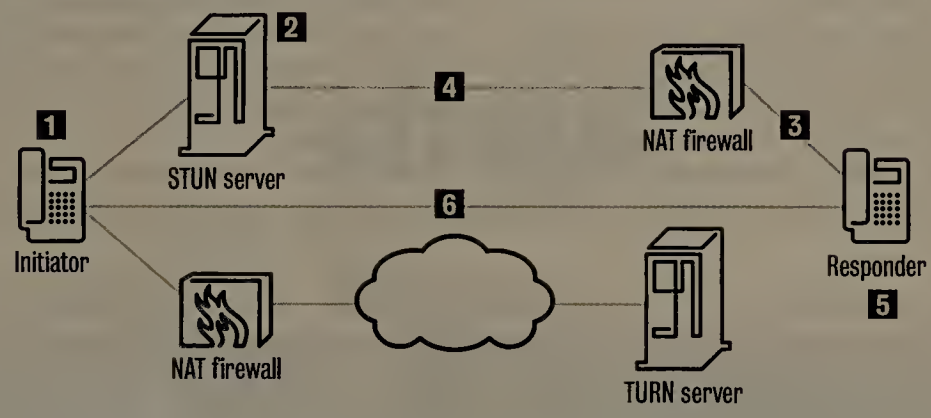
But some observers and standards crafters say such methods are stopgaps, and that VoIP connectivity should work as seamlessly across the Internet as browsing a Web site, sending e-mail or as in instant-messaging sessions.

This is where ICE comes in. The technology works by discovering the internal IP address schemes of networks that the two

See ICE, page 20

HOW IT WORKS: ICE

Interactive Connectivity Establishment technology is designed to let VoIP traffic traverse network address translation (NAT) firewalls. ICE defines a standard way for clients to determine a set of addresses with which they can communicate.



1. Initiator collects all sets of IP addresses on which it can receive traffic from Simple Traversal of UDP through NAT (STUN) and Traversal Using Relay NAT (TURN) servers.
2. Initiator sends list of addresses to STUN server, then sends initiate message to responder with a preference-order list of addresses for communication between nodes.
3. Responder sends a STUN request to each address provided in the initiate message.
4. Initiator sends STUN reply messages back to responder for each request received.
5. Responder receives STUN replies. The messages indicate the addresses by which the initiator and responder can communicate.
6. The address with the highest preference is used for further communication between the devices.

SonicWall buys boost security, storage

BY TIM GREENE

SonicWall is buying two companies to accelerate its security and storage options for customers.

The company is paying a total of $20 million for enKoo, which makes SSL VPN equipment for small and midsize businesses (SMB), and Lasso Logic, which makes appliances that back up data locally and provides a service to back up data at its secure storage facility.

After the deals go through, Sonic Wall will stop selling enKoo gear and start integrating enKoo features into the SonicWall SSL-VPN 200 and SSL-VPN 2000, says Matthew Medeiros, the company's president and CEO. The integration should be done by the end of the first quarter of next year, and the company will continue to support enKoo gear. The company says it also will offer customers deals to switch over to SonicWall equipment.

Network hardware companies continue to snap up technology they can use to make security a standard feature in the switches and routers that comprise the basic network plumbing inside businesses. Juniper Networks recently grabbed up security vendor Funk Software for $122 million. Citrix Systems then bought its way into the application firewall market by acquiring start-up Teros, and Force10 Networks acquired stealthy intrusion-prevention, intrusion-detection system (IPS/IDS) vendor MetaNetworks. In the past year Cisco acquired six security vendors, 3Com acquired IDS/IPS stalwart TippingPoint Technologies, Juniper bought application security firm Peribit and Citrix bought SSL VPN vendor Net6. (See more details to these acquisitions at www.networkworld.com, DocFinder: 9957.)

SonicWall is eating up one of its competitors' SMB customers, but faces competition from AEP and Watchguard Technologies. SonicWall started selling SSL VPN equipment two months ago with the introduction

See SonicWall, page 20

Security still top IT spending priority

BY TOM KRAZIT, IDG NEWS SERVICE

A recent survey of 100 IT executives predicts that IT spending will decrease slightly in 2006 as more businesses worry about global economic conditions, but security software and enterprise IT upgrades remain top concerns, according to Goldman Sachs.

Macroeconomic factors, such as high oil prices and a devastating hurricane season in the United States, have caused 40% of the executives to consider reducing their 2006 IT budgets, according to survey results released last week. Fifty-two percent believe their IT spending will be unchanged in 2006 from 2005.

Security software has been a long-running priority among the executives on Goldman's survey panel, and that mind-set hasn't changed, according to the current results. Spending on anti-virus products has eased after a flurry of activity, but CIOs continue to focus on improving security in identity management and regulatory compliance, the survey says.

Other corporate software priorities include ERP and CRM , with CIOs upgrading these categories to top priorities. When Goldman polled its panel in April, both were considered medium priorities.

Among enterprise-software vendors, VMware and SAP AG were the two most-cited companies that are receiving an increasing percentage of the respondents' IT budgets. Virtualization technologies are hot this year, as Intel and Advanced Micro Devices prepare chips that improve the performance of virtualization software. On the downside, respondents listed Novell and Computer Associates as receiving less of their IT budgets.

When it comes to choosing hardware for their new software, IT executives listed servers using Microsoft's Windows OS as a top priority, an upgrade from the April survey. Unix servers also received an upgrade, but are considered a medium priority among Goldman's respondents.

Dell and IBM are receiving larger shares of IT budgets. Goldman suggested that given Dell's financial results from the past two quarters, aggressive discounts may have played a role in Dell's performance among respondents. HP is losing its share of respondents' IT budgets, but Goldman expects the company's performance to improve over the next year.

Dell also is gaining share in the PC portion of respondents' IT budgets, while HP is losing share. Goldman attributed HP's performance to increased discipline about the markets in which it participates. Lenovo Group did not gain or lose share among the survey respondents, an improvement from the previous survey conducted after Lenovo completed its acquisition of IBM's PC business.

On outsourcing, 24% say they expect their interest in paying someone else to manage the data center or desktops to increase. With economic conditions on the minds of IT executives, reducing their costs by outsourcing these functions is expected to become more popular, according to Goldman.

Fifty-three percent of Goldman's survey respondents hold the title of CIO, while 22% are vice presidents of IT or IS and 15% are directors of MIS or IT. Eighty-two percent of the respondents work for companies that have yearly revenue of $500 million or greater, and 52% of the companies have more than 10,000 employees worldwide. ■

ICE

continued from page 19

VoIP endpoints are attached to, behind NAT firewalls. To do this, ICE uses existing protocols and IP address discovery mechanisms, such as Simple Traversal of UDP through NAT (STUN), Traversal Using Relay NAT (TURN) and Realm Specific IP. This requires servers that can accept STUN and TURN requests and broker these connections for VoIP devices, which are called initiators in the ICE model.

STUN and TURN "by nature of their design, are difficult to operate through NAT," according to Jonathan Rosenberg, a Cisco engineer and author of the IETF Internet draft for ICE.

"ICE makes use of STUN and TURN, but uses them in a specific methodology, which avoids many of the pitfalls of using any one alone," Rosenberg writes in the ICE IETF draft proposal.

The potential for any-to-any VoIP connectivity without impediment from NAT firewalls has strong promise for consumer VoIP technology, according to Don Proctor, senior vice president of the Voice Technology Group at Cisco. "Microsoft's and Cisco's endorsement of ICE standards bodes well for our mutual customers," he said in a statement. This is especially true considering that most home networks with broadband have Microsoft operating systems, are protected by broadband router/-NAT firewalls and connect to carrier networks with Cisco gear.

For some companies that run their business phone systems on IP networks, the concepts behind ICE pose some security issues, and the problem ICE proposes to solve is not one that is very pressing for companies that use IP PBXs and IP phones.

"We run VoIP so that all of our traffic runs on our internal network," says Irving Tyler, CTO for Quaker Chemical, an industrial chemical manufacturer in Conshohocken, Pa. His firm uses Avaya IP phones, IP-enabled PBXs and Cisco switches and routers to connect users in the company's main office and satellite sales offices. Any VoIP calls made on the network run inside Quaker Chemical's firewall boundaries and over point-to-point WAN links. When calls leave the network, they're translated to digital public switch telephone network voice signals.

The concept behind ICE — allowing IP communication devices to link with IP devices over the Internet, regardless of firewall configurations — might be a neat trick, but not an application his company is interested in now, Tyler says.

Also, the methodology of ICE, in which behind-the-NAT IP addresses are discovered and shared among connecting parties, is something that businesses might be hesitant to explore.

"I could see people being leery about doing that," he says. If a carrier or VoIP vendor could provide security for such exchanges, "I think companies would be more likely to look into opening up their internal IP addresses."

Proponents of the standard say the benefits of ICE will become more apparent when wide adoption of VoIP happens, and IP PBX installations become more mature. As more companies build security within network boundaries, ICE could play a role in simplifying voice-traffic management, says Cullen Jennings, a Cisco engineer.

Like Quaker, most VoIP traffic in businesses runs behind the edge firewall. But "many enterprises are looking at deploying, or are already using, lots of NATs inside the network," he says. This could be a large company that shares one large network, but separates divisions or departments with internal firewalls for security, or IP address management.

Branch offices sometime use NATs, so that devices can receive IP addresses from a local DHCP server, instead of a centralized source. ICE would help simplify VoIP connectivity in this case, as well, he adds.

As for when ICE will show up in VoIP products, Jennings says this is a ways off.

"ICE is still a draft, not even an RFC yet, so no one can really say they support it," he says. "But [Cisco has] products that we are working on with a prestandard implementations of ICE." ■

nww.com

Standard explanation

Cisco engineer Cullen Jennings provides an audio explanation of how ICE works.

DocFinder: 9948

SonicWall

continued from page 19

of two appliances and sees the need to speed up its development, Medeiros says. Enkoo can supply support for Citrix, single sign-on for remote users and the ability to rewrite HTTP, one key way that SSL VPN gear links remote users to corporate servers. "It was the type of product features we really needed to have," Medeiros says.

SonicWall is known for its firewall/VPN appliances for SMBs, although it has boosted the speed of the gear over the years to include equipment for larger customers. SonicWall also makes security platforms that scan for viruses, spyware, spam, phishing and other intrusions.

Its generally good reputation may ease worries of enKoo customers.

"I know they have good stuff," says Pete Kever, senior communications specialist for Griffith Holdings, an Internet marketing firm in Medina, Ohio.

Becoming part of a larger organization will likely help enKoo because it will have more resources to develop the products. SonicWall is taking on just six engineers from enKoo who have worked on SSL VPN software for years and have a jump on the SonicWall development team, the company says.

As for the Lasso purchase, SonicWall says it plans to continue selling Lasso's continuous data-protection appliances as stand-alone products, but will integrate management of the gear into SonicWall's management software. The idea is to give customers a single view of their security and back-up status and to set policies for both from the same console, Medeiros says. The gear is intended to provide backup in case other systems crash. It also will create a record of changes that can be used to comply with such regulations as the Sarbanes-Oxley Act and the Health Insurance Portability and Accountability Act.

Lasso's appliances store changes made to files locally, and customers can sign up for a service that lets them back up the local appliance to a Lasso secure storage facility. Medeiros says the acquisition of Lasso was motivated in part by the ongoing revenue from the service, which costs an average of $200 to $400 per year per customer. ■

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Short Takes

■ **Tarari** last week shipped a silicon-based engine and a software engine for accelerating the processing and exchange of XML data. The engines focus on Extensible Stylesheet Language Transformation and are optimized for Web services and transactional XML processing. The engines, called RAX-XSLT, are part of Tarari's Random Access XML family of XML Content Processors for use by engineers in building network devices, switches, appliances, blades and servers. The RAX-XSLT technology is available as part of the Tarari XML RAX Content Processor Development Kit, which is priced at $4,995.

■ **Crosswalk** has announced a software bundle designed to enable IT managers to monitor their back-up environments. The Crosswalk Storage Manager Backup Bundle reports on the mapping of host drives to the back-up applications and identifies hosts that are not being backed up. The bundle works with back-up applications from Computer Associates, IBM, EMC Legato, Syncsort and Symantec/-Veritas. Pricing starts at less than $10,000.

■ **Microsoft** has upgraded the synchronization component of its Windows Mobile 5.0 software. ActiveSync 4.1 fixes several problems that occurred with its 4.0 version when trying to synchronize data between a handheld device and a PC, according to information published on the Microsoft Developer Network blog. Connections were dropped between a PC and a device, and sometimes the software only partially synchronized data between the two. The problem stemmed from a conflict with desktop firewall applications or applications that manage network traffic, Microsoft says. The update is available through the Windows Mobile Web site at www.networkworld.com, DocFinder: 9944.

Start-ups seek to shake up multiprocessor server market

BY JENNIFER MEARS

A new breed of server company is targeting customers unsatisfied with the processing power of x86 system clusters and unwilling to pay steep prices for current proprietary symmetric multiprocessing boxes.

Two of these start-ups, Fabric7 Systems and Liquid Computing, have rolled out multiprocessor servers built on AMD Opteron chips that promise high-end compute power at prices lower than those HP, IBM and Sun usually charge for SMP boxes. In addition, the systems include network components that enable end users to allocate not just CPU but also I/O and bandwidth resources on the fly to satisfy changing application demand.

It's an idea similar to that used by developers of standards-based blade servers and rack-based server clusters, which use high-speed interconnects to enable workloads to be shared across systems. But Fabric7 and Liquid Computing, whose founders worked at such network companies as Nortel and Procket Networks, take the clustering idea a step further by including virtualization and network capabilities within a single SMP box.

"The real trick here is marrying the interconnect strength with commodity or off-the-shelf processors, operating systems and middleware," says Jonathan Eunice, president and principal analyst at Illuminata. "We're talking Windows; we're talking Linux. It's standard middleware. It's not a specialized design that needs huge amounts of customization of the whole software stack."

Armed with about $45 million in venture funding between them, Fabric7 and Liquid Computing are targeting different markets: The former positions its systems as the answer for enterprise IT administrators battling with underutilized, proprietary midrange servers, while the latter is eyeing the high-performance computing segment looking for unbounded compute power.

But their approach — combining Opteron processors and advanced network features — is similar, and one that analysts expect to see more of as enterprises more widely embrace the idea of data center virtualization.

Roger Carpenter, vice president of design at Magma Design Automation in Santa Clara, Calif., which makes software for chip design, has been testing Fabric7's Q160 since earlier this year. Carpenter says he likes Fabric7's approach because it will enable him to get the processing power he needs without spending a lot of money on high-end systems. A 14-way Q160 starts at $144,000, whereas IBM's Web site lists a 12-way Power5-based p570 system starting at $165,000.

"Much of [electronic design automation] software used very expensive multiprocessing systems in the past," he says. "The trend lately has been toward Linux and two-way Linux boxes."

But now multithreaded EDA applications are demanding more memory and bigger multiprocessor systems at different points in the design process, Carpenter says.

"We need an eight-socket server so we can access all the memory at the beginning, and then we can switch to two sockets when we break [the workload] into smaller pieces and distribute the processing," he says. "Without Fabric7 we would have to have an eight-way and then two-ways. So this saves us money and also provides higher performance" because of the high-speed interconnect within the system.

Dan Carruthers, owner and president of Permedia Research Group, a company in Ottawa that makes software for the oil and gas industry, says he considered using clusters of x86-based systems but decided that they would not be able to support the kind of processing his customers need.

Permedia's simulation software, MPath, uses parallel algorithm modeling and has heavy throughput demands. Carruthers says commodity clusters break down after about 32 nodes.

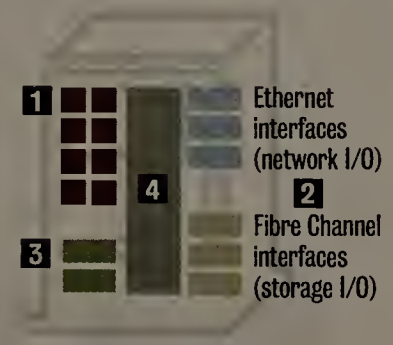
"If we can get some sort of linear scaling on these things and break through that 32-node barrier, then we're really on to something. We're not just throwing faster hardware at the same models," he says.

Earlier this month, Permedia announced that it would use Liquid Computing's LiquidIQ server to support its simulation software.

"The only way you can access that kind of computing performance [that our customers need] is on this kind of specialized hardware," he says. ■

Serving up flexibility

Start-up Fabric7 says combining network and compute power creates a simpler, more flexible data center infrastructure. A look at its Q160 server:



Fabric7 Q160 server

1. Supports up to 14 dual-core AMD Opteron processors and up to 176G bytes of memory that can be sliced into as many as seven two-socket systems with virtualized I/O.
2. Up to 64 virtual I/O interfaces can be configured on the fly as either Ethernet or Fibre Channel with 100M bit/sec to 10G bit/sec.
3. Accelerator modules provide server load balancing and offload SSL and XML processing for faster application performance.
4. Internal crossbar with 128G bit/sec full-duplex switching connects the virtualized resources.

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DocFinder: 9947

Virtual tape system adds security

BY DENI CONNOR

Neartek, a maker of virtual tape library systems, says the latest version of its appliance works better across remote sites and provides improved data security.

Like earlier models, Version 3 of the Linux-based Virtual Storage Engine sits between back-up servers and storage arrays. It receives data from the back-up server and saves it to disk rather than to tape. The software emulates writing data to tape and catalogs backups as individual virtual tape cartridges.

New in Version 3 is support for remote vaulting. This enables customers to divvy up data into large chunks and then replicate or stripe it asynchronously over IP to a Neartek appliance at a remote site.

The appliance, now encryption-enabled, will work with Network Appliance's Decru DataFort, NeoScale Systems' CryptoStor appliance or Kasten Chase's Assurency SecureData appliances.

"Encryption of tapes that are sent offsite is a big need for customers," says Diane McAdam, senior analyst for the Data Mobility Group. "There is also a need to encrypt the backups that are resident on disk [such as in the case with the Neartek offering] to prevent [unauthorized] internal personnel from being able to access sensitive information."

The upgraded system can be used to compress data by factors of two or three times. This feature is available via a PCI-X adapter that fits into the appliance.

Another new feature enables customers to more consistently categorize storage media.

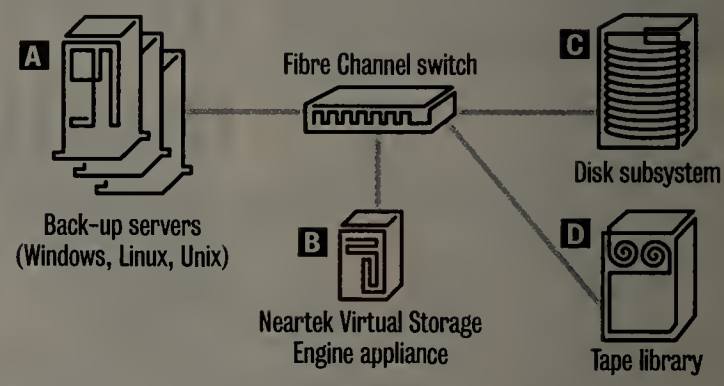
"The back-up application needs to know what the volume serial number of the tape cartridge [being emulated] is so that it can call for the right tape when a restore is required," McAdam says.

Neartek, founded in 1994, also has a version of its virtual tape library technology for HP NonStop, HP e3000 and Bull mainframe environments. The Virtual Storage Engine competes with products such as EMC's Clariion Disk Library, Sepaton's S2100 Virtual Tape Library System and Diligent's VTF Open. Unlike those products, Neartek's appliance is storage-agnostic.

The Virtual Storage Engine is priced by the size of the disk to which data is backed up. A 2T-byte configuration, including the disk, appliance and software, is $25,000. The remote replication option costs $10,000 and requires a second VSE at the remote location. The compression option costs $5,000. ■

The best of both worlds

Neartek's Virtual Storage Engine emulates the actions of a tape library and backs up data to disk.



A Servers running traditional back-up software see the disk subsystem attached to the SAN as a tape library.

B The Virtual Storage Engine appliance intercepts data being backed up and manages media consistency, encryption and compression.

C When data is stored to the disk subsystem it has the volume serial number of the virtual tape.

D Data can be migrated to tape for long-term archiving.

The Network MVP of the year is . . .

WIRED WINDOWS
Dave Kearns

Because of the vagaries of the calendar — and publishing schedules — I need to do some tidying up a bit early this year. Today, I want to look back at my predictions for 2005 and hand out another Network MVP award. First, the prognosticating.

Last January, I made the following predictions (www.networkworld.com, DocFinder: 9930):

1) Novell's Open Enterprise Server will surpass sales expectations.

2) Microsoft will hammer heavily on licensing issues (looking very much like subscriptions) to try to even out the revenue stream.

3) As the economy picks up, so will merger-and-acquisition activity, especially in the identity-management market.

4) Linux on the desktop finally will become a reasonable alternative to Windows for mainline business organizations.

On a scale of 1 to 5, I'd give myself a 4 for No. 1, a 3 for No. 2, a 5 for No. 3 and a 4 for No. 4. That's a grand total of 16 out of 20. Not too shabby, I'd say!

The Network MVP award, like the MVP award in sports, is given to the person or persons who, in my estimation, have done the most to further their organization's network agenda during the previous year. Sometimes it's a large organization, sometimes a small one. This year it's an enormous one — the behemoth of Redmond itself, Microsoft.

The award goes to a man who, as the Hollywood story goes, toiled hard for many years to become an "overnight" success. He's toiled for Bill Gates ever since he (and his company) were acquired in 1999. But this year he broke forth when he came down from the mountain with a set of laws.

Kim Cameron and his Seven Laws of Identity (DocFinder: 9931) have done more to stimulate talk about Identity Services than even the federal government and its Sarbanes-Oxley Act, Gramm-Leach-Bliley Act, the Health Insurance Portability and Accountability Act and other regulatory fiats. That alone would get Cameron consideration for MVP, but there's more.

The Seven Laws and Cameron's work on Microsoft's InfoCard technology have gone a long way toward repairing the damage that Redmond's "HailStorm" fiasco (DocFinder: 9932) created. It also got people interested in talking to Microsoft.

A year earlier, the company would have run away kicking and screaming. Some (such as Doc Searls, editor of Linux Journal) defended Microsoft and Cameron from attacks by the fringe members of the Linux and open-source community. The MVP is well deserved. Sainthood is under consideration.

Kearns, a former network administrator, is a freelance writer and consultant in Silicon Valley. He can be reached at wired@vquill.com.

Tip of the Week

■ Previous winners of the Wired Windows' Network MVP award are Novell's Jack Messman (DocFinder: 9933), HP's Carly Fiorina (DocFinder: 9934), Radiant Logic's Michel Prompt (DocFinder: 9935), Bowstreet's Frank Moss and Jack Serfass (DocFinder: 9936), Directory Enabled Networks' co-chairs John Strassner and Steven Judd (DocFinder: 9937) and Novell's Eric Schmidt (DocFinder: 9938).

Novell taps IBM, Lucent veteran as CTO

BY IDG NEWS SERVICE

Novell has appointed as its new CTO an executive who spent the past five years at Lucent and its Bell Laboratories arm and 20 years before that at IBM.

Jeffrey Jaffe, most recently president at Lucent's Bell Laboratories, will head up Novell's technology direction and lead the company's product business units, according to a Novell statement.

Reporting to the new CTO will be David Patrick, Novell's vice president for Linux, open source products and services, and Kent Erickson, the company's vice president for identity products.

Markus Rex, Novell's CTO for Linux, open source platforms and services, will continue in his current role working for Patrick, while Carlos Montero-Luque will stay as CTO for identity, reporting to Erickson, according to a Novell spokesman.

At the end of last month, Novell named Ron Hovsepian, previously executive vice president and president of Novell's global field operations, as its president and COO, a role that hadn't existed at Novell since 2002.

In a 20-year career at IBM, Jaffe held various research roles including vice president of systems and software and corporate vice president of technology. ■

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InSite: Lessons from Leading Users

Citigroup controls network resources

BY DENISE DUBIE

Citigroup tackled a Herculean task of subduing the multiheaded Hydra that emerges when large enterprise IT shops try to scale network change and configuration management software — and the financial services company came out on top. The financial services company submitted its project to Network World's Enterprise All-Star Awards competition, which honors 50 companies and their groundbreaking technology projects, and earned a spot among the winners for its large-scale rollout.

In August 2004, Citigroup's Enterprise Systems Service team, which is part of the company's Technology Infrastructure division in New York, realized that proprietary tools and manual efforts could no longer keep the threats caused by inconsistent configuration-management practices at bay. The team then led a two-phase project for the $17 billion company.

As simple as it may sound, maintaining an accurate, up-to-date record of network-device inventory, operating system and configuration becomes exponentially more challenging as devices multiply, vendors vary and data collected from the devices differs. Add to that challenge the numerous changes that occur on any given day — some of which may require distributing a patch to several routers and switches, for example — and IT managers face potential network failure, customer-service worries and imminent security threats.

According to market research firm Enterprise Management Associates, 60% of network downtime is caused by human error during device configuration. There's also potential for error when real-time emergencies such as viruses or worms occur. To address the complexity of the problem, network change- and configuration-management vendors typically automate the process of collecting multivendor configurations and maintaining them in a database.

Citigroup's project found the Enterprise Systems Service team exploring niche vendors with products that promised to eliminate the manual effort of collecting configurations in heterogeneous enterprise networks. These vendors put into software the dirty work — telneting into devices and scraping configurations, for example — typically performed manually by network operations staff. Such tools also incorporate configuration details garnered from equipment vendors, which reduces the need for device-specific experts within a single IT shop. "We were looking for a product that would provide all the reporting, governance, inventory and configuration features such as rollout and rollback, which we did manually, as well as some best-practice workflow and processes," says a Citigroup IT official who, because of corporate policy, cannot be identified.

Following a $1.5 million investment in software, hardware and overall manpower costs for Phase 1, the company reports it began seeing benefits within three months of installing network change- and configuration-management software from AlterPoint. Within six months, the company significantly reduced the time it required to manage access lists across devices — from four

See Citigroup, page 28

Short Takes

■ **Business Objects** has upgraded its suite of business intelligence software with an application that lets nontechnical users generate reports and queries from company data. The application — **BusinessObjects Intelligent Question** — in BusinessObjects XI Release 2 lets users create queries in their everyday language by answering questions from drop-down menus. A sales executive could ask for a list of customers in the top 25% of buyers by revenue for a region. The application attempts to prevent users from making invalid queries by steering them through questions they ask. It provides more information about where data used by the applications comes from and when it was updated, to help companies meet regulatory requirements for ensuring that information they report is current and accurate.

Quest extends Windows-Linux integration

BY JOHN FONTANA

Quest Software, which has been building a cross-platform bridge between Linux and Windows systems, is expected to release early next year a tool that lets users monitor the open source operating system from their Microsoft management consoles.

Quest's Vintela Systems Monitor (VMS) 1.0 plugs into and expands the monitoring and performance tool Microsoft Operations Manager (MOM) to include Linux and Unix servers, giving IT departments a centralized console for monitoring their server environments. VMS works with MOM 2005 and extends to the AIX, HP-UX, Solaris, SuSE and Red Hat platforms.

"A lot of users find they are engaging in swivel-chair management, going from one console to another," says Andi Mann, an analyst with consulting firm Enterprise Management Associates. "The trend toward using appliances, blades and racks means that Linux is an attractive option. If users pick that option they have to think about monitoring and managing it," Mann says.

Mann says Quest is slipping VMS between the options of a fully manual scripting management environment, and full-blown and costly systems management platforms from Computer Associates, HP and IBM. MOM 2005 has a feature called the Connector Framework that permits integration with those management platforms.

MOM uses a set of agents that run on servers and applications and allow it to track application state, monitor the health of servers, and correct errors or restart services or entire servers. VMS is one such agent, which hooks into MOM's Administrator, Operator and Web consoles and the MOM reporting engine.

With VMS, Quest has created management packs for Unix and Linux that let users configure and monitor server performance and availability.

Quest has included a framework so users can author their own management packs for Unix- or Linux-based systems, applications or services.

"Our agent is built on standards, Open [Web-based Enterprise Management] and Universal Management Instrumentation, which is key to Systems Monitor. This is not just parsing syslogs; we are working across standards so users can build management packs on their own that sit on this," says Paul Barcoe-Walsh, director of product management for Quest.

VMS is the latest cross-platform software from Quest, which acquired Vintela earlier this year. The company is developing a line of tools that extend Windows features — such as Active Directory administration, password reset and group policy — to the Unix and Linux platforms. The company competes with BindView, NetIQ and NetPro in Microsoft infrastructure management and with Centrify in Unix and Linux integration.

VMS is in beta testing and is slated to ship in January. Pricing has not been set. ■

NET INSIDER

Scott Bradner

'Net governance: A chatty whimper

The second phase of the World Summit on the Information Society finished up earlier this month in Tunis, and the surprising thing is how little actually happened, considering the buildup to it and the potential for trouble.

The International Telecommunication Union (ITU) proposed the WSIS in 1998 to examine "the interpenetration between issues of telecommunication development and those of economic, social and cultural development, as well as the impact of such interpenetration on social structures" of countries.

The idea also was to recognize "that ITU is the organization best able to seek appropriate ways to provide for development of the telecommunication sector geared to economic, social and cultural development."

While not everyone might agree with the latter recognition, the current and future impact of information technology on society is unquestioned and much worried about.

With the support of the United Nations, the ITU decided to hold the WSIS in two phases. The first phase took the form of a meeting in Geneva in December 2003. That led to the UN forming a Working Group on Internet Governance to explore the issues and produce a report (www.networkworld.com, DocFinder: 9940) to be used as input to the second phase of WSIS, which was the just-concluded meeting in Tunis.

There were some very hot issues going into the Tunis meeting, with the hottest being the management and oversight of the core Internet technical support functions performed by the Internet Corporation for Assigned Names and Numbers (ICANN) under a contract with and supervision from the U.S. government.

A lot of other world governments said it was high time that the United States relinquished sole control over these functions. Some also thought it might be time to replace ICANN with another organization, maybe even the ITU, that would be more controlled by governments and responsive to their interests.

The U.S. basically said no, and after a tense preparatory meeting in Tunis just before the formal WSIS gathering, the U.S. basically got its way. ICANN will continue to be the top of the pyramid for domain names and IP address assignments under the sole supervision of the U.S. government.

As part of the agreement, the UN will create an Internet Governance Forum that will have "no binding authority" but will debate Internet governance issues and advise ICANN and others of its deliberations. This seems fully status quo, but some countries claim that the U. S. agreed to eventually relinquish sole control, a claim with which U.S. officials disagree.

Much of the final WSIS agreement — the "Tunis Agenda for the Information Society" (DocFinder: 9941) — is dedicated to the same type of issue that dominates most reports of international summits — the inequitable distribution of some resource, in this case information technology, among parts of the world.

A lot of words were said about a lot of topics in Tunis, but when the meeting ended, the expected fireworks had fizzled and the status quo had been preserved.

Hardly a monumental outcome for the 18,000-plus folks who gathered in the North African heat and traffic (DocFinder: 9942). And to think that the new Internet Governance Forum will soon provide opportunities to do more of the same.

Disclaimer: Harvard presents numerous opportunities for summit-type meetings to fizzle or to sizzle, but this review of WSIS in Tunis is my own.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

Citigroup

continued from page 27

or five staff members working for three days to one staff member working for three to seven hours. And Citigroup reduced manual remediation from 75% to less than 1%. Citigroup says the gain is 400% to 500% improvements in staff scalability.

Although it used AlterPoint DeviceAuthority as the core, the IT team built its own Web-based portals to address Citigroup-specific features and workflows that were not strategic for AlterPoint to develop or not planned until a later stage in the vendor's road map, the IT official says.

Citigroup built extensively around the AlterPoint product to provide the overall solution that internal clients needed, leveraging the vendor API. The driving factor overall was to find a scalable solution, ideally one that was comprehensive enough to reconsolidate related features that Citigroup had decoupled to address the limits to scalability of industry and internally developed tools, Citigroup says.

Citigroup, which supports more than 44,000 network devices worldwide, was faced with "complexity inflation" and a lack of scalable management tools to keep complexity in check, Citigroup says.

Among Citigroup's specific challenges were regular maintenance processes requiring multiple staff members and far too many man-hours. "We were spending 90% of our time dealing with compliance, making sure our processes and devices were compliant to regulatory and internal Citigroup mandates, in an ISO 9000-like environment."

ISO 9000 is a worldwide quality standard, and certification requires businesses to have documented, repeatable processes for ensuring that they deliver quality products. Citigroup wanted a better method to keep its devices in line with not only ISO 9000 but also the Sarbanes-Oxley Act, other information security requirements and internal security policies.

Compliance wasn't Citigroup's only concern. The Enterprise Systems Services group also wanted to associate the company's network devices to the business and tag assets with priorities relevant to Citigroup clients, both internal and external.

"We needed to be able to do business-tagging in relation to the clients that go through the device so we could quickly answer questions, such as 'Is that device part of Tier 1, 2 or 3?' to determine how critical the device is," the IT official says. "That way we could more quickly determine where we could shut off the valve during a worm or other attack, before it affected the organization and the clients."

With some 48 criteria to consider — including business, technology, product-support features and user reaction — Citigroup decided on AlterPoint's DeviceAuthority Suite for its diverse device support and vendor stability.

The suite includes a server, a set of adapters and an Open Database Connectivity-compliant database. It has two application components, the Audit Module for inventory reporting and the Update Module, which automates mass configuration changes across any range of devices. The suite supports more than 1,000 network devices from 25 manufacturers, and audits in real time any change made to any of those devices.

Citigroup installed DeviceAuthority on servers in its geographically dispersed data centers, poked the appropriate holes in company firewalls, and kicked off an internally developed device-discovery process, which reported back hardware and software configuration data from every device to be managed. This process compared devices from Citigroup's internal network-asset inventory with those in its network fault-monitoring systems, and reconciled the devices' configurations in the different systems against the devices themselves using DeviceAuthority Suite's APIs.

With some 28,000 of its 44,000 devices being managed with DeviceAuthority, Citigroup says it's poised to enter Phase 2 of the implementation, which will broaden the scope of the AlterPoint software to include other router and switch vendors such as Nortel and Juniper Networks, and potentially will add other IP-based devices that support the network, such as load balancers and compression appliances. ■

Capturing configuration

Citigroup has launched an IT initiative that will eliminate the manual efforts required to manage network device change and configuration across thousands of distributed devices.

Citigroup poked the appropriate holes in corporate firewalls to let DeviceAuthority use up to 10 methods, such as telnet, Secure Shell, FTP and scraping, to get a snapshot of device configuration.

DeviceAuthority, installed on a server behind the router in Citigroup's data center, collects configuration data from close to 30,000 distributed Cisco routers and switches.

Citigroup built its own Web-based portals using DeviceAuthority's API to address Citigroup-specific features and workflow such as data reconciliation, storage and comparative analysis.

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Short Takes

■ **Ascendent Systems** has unveiled a version of its PowerConnect suite, which is designed to extend telephone features to any phone an employee has access to while working offsite. Version 4.1 adds presence applications that let users display their availability and also see whether colleagues are logged on and available to communicate via phone, e-mail or video. Additional features include four-digit dialing, enhanced Session Initiation Protocol support, and upgraded password management and profile administration tools. Enterprise pricing for PowerConnect 4.1 starts at $40,000.

■ Sales of **small office/home-office wireless LAN equipment** grew only 2% in the third quarter of 2005 — much less than the 10-plus percentage increases posted in the third quarter of 2004 and the third quarter of 2003, according to the Dell'Oro Group. The SOHO WLAN market is seeing increased competition from DSL customer premises equipment with integrated WLAN features, the firm says. The group also notes that, although many SOHO customers are hesitant to upgrade their 802.11g equipment, more will upgrade once standard 802.11n products are available, to take advantage of the technology's enhanced speed and coverage. Linksys, Netgear, D-Link and Buffalo Technologies are the top four companies in the SOHO WLAN arena, Dell'Oro says.

■ **Compuware** has unveiled a new version of its Vantage application-management suite, which is aimed at helping applications perform better. Vantage 9.8 supports agentless monitoring, which lets IT staff keep tabs on the performance that remote workers and telecommuters are experiencing, with no preinstalled agents required. The new monitoring capabilities are based on technology Compuware gained by acquiring Adlex earlier this year. Compuware also added tools for better diagnosing problems caused by Java. Pricing for Vantage 9.8 starts at $30,000.

Legislators rally for teleworking

BY ANN BEDNARZ

Lawmakers have been making noise on the telework front lately, with legislatures convening to discuss what government agencies and corporations are doing to help the U.S. workforce deal with volatile gas prices.

While gas prices have fallen from $3-per-gallon highs in September to pre-Hurricane Katrina levels, the national average is still $2.37 per gallon — up 38 cents over last year, said Rep. Jon Porter (R-Nev.), who also is chairman of the Congressional subcommittee on the federal workforce and agency organization. "That increase has caused people to reevaluate their finances and commuting habits, since it is no longer economically feasible for many American families to fill up their vehicles every week."

Porter made these remarks in a hearing he hosted earlier this month to discuss what can be done to lessen the effects of high gas prices on employees. Teleworking has received a lot of attention, but neither agencies nor employees have taken advantage of telework programs to the degree that Congress would like them to, Porter said.

Among the witnesses to testify at the hearing was Rep. Frank Wolf (R-Va.), who has spearheaded an effort to require agencies to comply with congressionally mandated telework requirements or risk losing funding. Several agencies remain in violation of 2001 legislation that requires all federal agencies by year-end to allow every eligible employee who wants to telework — and whose job lends itself to telework — to do so.

"Just last week I was contacted by several constituents with the Bureau of Prisons and the Farm Service Agency who are being denied their right to telework. This kind of attitude by federal agencies must end," Wolf said.

Wolf inserted a provision in 2005 and 2006 spending bills to withhold $5 million from the budgets of the departments of Commerce, Justice and State and NASA, until they meet telecommuting mandates. These agencies also are required to instate a telework coordinator and regularly report on the number of their employees who telecommute.

"I hope these provisions will get the telework point across and the agencies, from the top down, will start taking telework seriously," Wolf testified. "I do not like having to be so heavy-handed and threaten to withhold funding, but if that is what it is going to take to get the point across to federal agency managers, then that is what I will continue to do."

Rep. Danny Davis (D-Ill.), ranking member of the subcommittee, acknowledged in his testimony that telecommuting is known for benefits such as reducing traffic congestion, and improving employee recruitment and retention. Davis also championed another reason to push federal agencies to implement the infrastructure and work processes necessary to support telecommuting: emergency preparedness and the threat of terrorism.

Davis introduced legislation that would require the government's Chief Human Capital Officer Council to conduct a 10-day demonstration project that broadly relies on employees working from alternative work sites, including their homes.

"The outcome of the demonstration project would provide agencies and Congress with approaches for gaining flexibility and identifying work processes that should be implemented during an extended emergency," Davis said at the hearing. "The number and types of potential emergency interruptions are unknown, and we must be prepared, in advance of an incident, with the work processes and infrastructure needed to reestablish agency operations."

The hearing also drew testimony from the private sector, including Steve Hill, president of Silver State Materials. The Las Vegas concrete supply company purchases roughly 140,000 gallons of fuel each month, and escalating prices have created a big discrepancy between its 2005 budgeted fuel price of $1.75 per gallon and its actual average fuel price of $2.41 per gallon.

"If the average price for fuel remains at $2.41 per gallon through the end of 2005, the ultimate additional cost to Silver State Materials, as compared to our budget, will be approximately $2,200,000," Hill testified at the hearing. "To put that amount into perspective, that equates to over $11,000 per employee — more than our total cost of providing healthcare to those same employees."

Hill advocates, among other measures, federal assistance to help businesses accurately forecast the price of fuel, as well as federal assistance to help accelerate the use of alternative fuels.

Steve O'Keeffe, executive director of the Telework Exchange, reiterated the idea that federal agencies need to accelerate telework adoption to reduce employees' commuting costs. "The gasoline price hikes of September 2005 drove a real-income salary reduction of $526.25 for the average federal employee. The increases drove a 42.6% increase in America's commuting costs," O'Keeffe said.

New research from Telework Exchange shows that federal employees are interested in teleworking, but adoption barriers remain. Although the federal government's Office of Personnel Management reports that close to 100% of agencies have a telework plan, just 56% of 3,500 survey respondents are aware their agency has a telework plan. In addition, only 21% of respondents believe they can readily access that plan.

If all eligible federal employees were to telework two days per week, the federal workforce would realize collective savings of $3.3 billion and spare 2.7 million tons of pollutants from being dispersed into the environment each year, the Telework Exchange reports. ■

Something to lose

Federal government employees typically spend more time commuting than they do on vacation, according to new research from the Telework Exchange.

Every year, a typical federal employee who commutes five days per week:

- Spends $10,580 on commuting costs.
- Disperses 8 tons of pollutants into the environment.
- Spends 245 hours commuting.

A typical federal employee who works from home two days a week:

- Shaves $4,372 off commuting costs.
- Spares the environment 3.6 tons of pollutants.
- Gets back 98 hours of free time.

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SERVICE PROVIDERS

Lucent gaining momentum behind IMS

BY JIM DUFFY

Lucent is riding a new wave of momentum thanks to high-profile convergence contracts and growth on revenue and profit margin over the past year.

The company has landed BellSouth, SBC and Cingular Wireless as customers for IP Multimedia Subsystem (IMS) products and services. IMS is an architecture for next-generation telecom networks that supports voice, video and data integration over wireline and wireless networks, with service from any digital interface — desktop PCs to mobile handsets.

"We believe we have established ourselves as leaders in this space," said Lucent CEO Pat Russo in a recent Webcast to financial analysts. "It is strategic for us and the ultimate enabler of our portfolio."

Financial terms of the IMS contracts were not disclosed. But analysts say potential revenue for Lucent from these and four other IMS wins could be in the tens of millions to hundreds of millions of dollars. Lucent said it has seven IMS wins and 43 trials.

"We estimate initial hardware/software deployments to be in the $50 million to $75 million range, with additional revenues tied to IMS penetration with end customers," said UBS Warburg Analyst Nikos Theodosopoulos in a recent report on the company.

UBS says, though, that Lucent is not likely to record any material revenue from IMS deployments in fiscal 2006 and is expected to see pickup in IMS sales in fiscal 2007. The firm also says the long-term revenue in IMS for Lucent tied to the service provider's ability to get end users to pay for IMS services.

Nearly every telecom supplier has an IMS pitch, but UBS says Lucent and Ericsson are the early leaders.

> "I believe we've established ourselves as a leader [in IMS]."
>
> *Pat Russo, Lucent CEO*

Any momentum from IMS will extend success Lucent achieved in fiscal 2005, which ended on Sept. 30. Fiscal 2005 was Lucent's second consecutive profitable year after three years of losses — net earnings were $1.19 billion on a 4.4% growth in revenue over fiscal 2004.

In addition to IMS, Lucent is focusing on 3G wireless mobility, optical/data convergence, broadband access, professional services and applications. These are all growth markets that will achieve compounded rates of 10% to 41% over the next four years, Russo said.

These markets are where Lucent has placed its "strategic bets," Russo said. She added that these bets align well with the growth segments of the industry, and should pay off as IMS takes hold among Lucent's service provider customers and their customers.

"IMS is the heart and brains of the customers' network, the control point," Russo said. "And when you're in the heart of the network you're party to all conversations on how to connect these services to this network." ■

Short Takes

Sprint Nextel last week said it will buy wireless affiliate **Alamosa Holdings** for approximately $4.3 billion. Alamosa was Sprint's largest PCS affiliate. Alamosa provides Sprint PCS services in 19 states, serving approximately 1.48 million direct wireless subscribers in 242 customer service areas. With this acquisition Sprint has announced agreements to acquire more than 2.3 million Sprint PCS affiliate customers. The acquisition is expected to be completed in the first quarter of 2006.

EYE ON THE CARRIER
Johna Till Johnson

Knowing your company's IT culture will pay off

When working with clients, one of the things I try hard to assess is how the organization views technology: Is it a strategic competitive advantage or a necessary evil?

There's no right answer — for some companies, technology is a necessary evil, and the right amount to spend on it is as little as possible. For others, IT can be the critical component in overall success or failure. The true challenge of assessing an IT culture is making sure it's in line with the company's business drivers — that is, making sure that there's a fit between the company's business drivers and the way it views technology.

I'll typically put companies into four categories, based on their IT cultures: bleeding edge, aggressive, moderate and conservative.

Bleeding-edge companies tend to have high margins and focus on revenue growth and profitability as their critical business drivers.

They're willing to take a risk on any technology earlier in its maturity life cycle than most firms, because for them the potential competitive advantage resulting from early adoption outweighs the risks and challenges of rolling out a technology that might not be fully baked. Wall Street firms are classic archetypes (in fact, in a recent benchmark we did with the Wall Street Technology Association, half of the WSTA's member firms described themselves as bleeding edge).

Aggressive companies are fairly similar, just not as extreme. They're more likely than the bleeding-edge folks to list cost containment as one of their top three drivers (though it's usually ranked third). They may have challenges of scope or scale that make it impractical to roll out truly bleeding-edge technologies. Many large manufacturers and pharmaceutical firms, as well as some financial services organizations, classify themselves as aggressive.

Moderate and conservative organizations generally wait until a technology has proven itself and gained market traction before deploying it. These categories often include retailers and manufacturers of traditional wares, who typically cite cost containment as their top priority.

Let's see how this plays out with some top-of-the news technologies:

- MPLS. Aggressive and bleeding-edge companies are moving, well, aggressively toward MPLS-based services, while conservative firms are still inking three-year frame-relay deals. What should your firm be doing? That depends. An aggressive firm that's midway through a three-year frame contract should probably assess switching to MPLS before the contract terminates; a conservative firm can easily wait until contract termination to review.
- VoIP. Rollouts have moved well into the moderate camp — traditional retailers and manufacturers are jumping on the VoIP bandwagon, along with financial services firms, pharmaceuticals and high-tech manufacturers. Unless you're sure your company is conservative, you should also be assessing VoIP.
- Real-time collaboration. Firms that are moving aggressively forward with RTC tend toward the bleeding edge, particularly consulting and professional services firms that view individual productivity as a competitive advantage. But watch for this to change rapidly over the next 12 to 18 months, as these technologies become more mainstream.

The bottom line? Thoroughly understanding your organization's IT culture lets you effectively prioritize your firm's strategic technology planning.

Johnson is president and chief research officer at Nemertes Research, an independent technology research firm. She can be reached at johna@nemertes.com.

TECHNOLOGY UPDATE

AN INSIDE LOOK AT TECHNOLOGIES AND STANDARDS

Technology corrects packet errors

BY DAVID HUGHES

Forward error correction has long been widely deployed at the physical-link layer in conjunction with advanced line-coding schemes. These techniques check and correct bit errors on WAN links to ensure that upper-layer protocols receive error-free datagrams.

But even when a network's physical link is free from bit errors, packets may still get dropped in transit on WAN links because of queue overflows in oversubscribed networks. For example, it is common to see several portions of the Internet experiencing 2% to 3% packet loss at any given time.

Packet-level FEC works by adding another error-recovery packet for every N packets that are sent. This FEC packet contains information that can be used to reconstruct any single packet within the group of N. If one of these N packets happens to be lost during transfer across the WAN, the FEC packet is used on the far end of the WAN link to reconstitute the lost packet. This eliminates the need to retransmit the lost packet across the WAN, which dramatically reduces application response time and improves WAN efficiency.

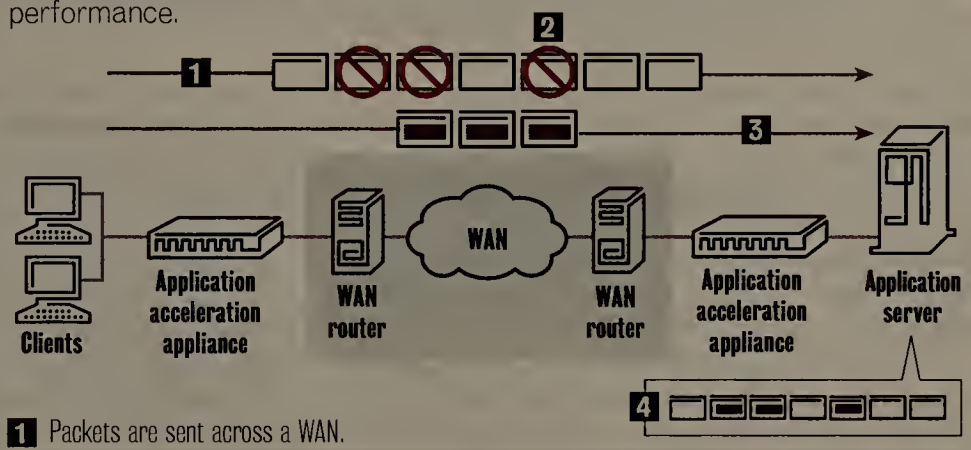
Packet-level FEC is an important tool for enterprises looking to deliver business-critical applications across a distributed WAN. It is increasingly being implemented as part of symmetric application-acceleration solutions. The functionality is incorporated in application-acceleration appliances that are deployed on both ends of a WAN link to improve application delivery through a combination of data reduction, local-instance storage and delivery, compression, protocol acceleration and QoS.

FEC works best on a high-rate aggregate flow, rather than on individual flows. As a result, it is best implemented in environments that use tunnels or aggregated flows when transferring traffic across a WAN. In addition, an ideal FEC implementation will adapt the amount of overhead to accommodate changing WAN conditions.

With adaptive FEC, if a tunnel is experiencing no loss, FEC is disabled and no overhead is incurred. When loss is detected (because of a network event or during periods of congestion), FEC automatically steps in, reducing loss by an order of magnitude or more — from several percent down to a fraction of a percent, in certain instances. In doing so, application-level throughput during periods of network congestion is boosted by a similar amount. The FEC ratio (ratio of error-recovery packets to data packets) is adjusted dynamically to ensure that the performance is maximized while overhead is kept at a minimum.

HOW IT WORKS: Forward error correction

Forward error correction mitigates WAN packet loss to boost application performance.



1. Packets are sent across a WAN.
2. Network congestion occurs.
3. Based on the level of congestion, a forward error correction packet is sent for every N real packets. This packet contains information that can be used to reconstruct missing packets.
4. Forward error correction packets replace lost packets at the far end, eliminating the need to retransmit lost data.

When implemented properly, packet-level FEC provides a significant increase in application performance under a wide range of network conditions. For example, in an average sampling across live enterprise networks, it takes approximately 85 seconds to download a very large file across a 10M bit/sec WAN link with 3% packet loss and no FEC. When adaptive FEC is enabled on the same type of link (keeping all other parameters the same), the identical file is transferred in approximately 5 seconds. In this scenario, FEC provides a 17x improvement in application-response time.

By providing an order-of-magnitude performance improvement in WAN environments with high packet loss, FEC is indispensable to companies that are delivering business-critical applications to remote and branch offices using centralized servers and storage infrastructure.

Hughes is CTO and founder of Silver Peak. He can be reached at dhughes@silver-peak.com.

Got great ideas?

■ *Network World* is looking for great ideas for future Tech Updates. If you've got one, and want to contribute it to a future issue, contact Senior Managing Editor, Features **Amy Schurr (aschurr@nww.com).**

Ask Dr. Internet

By Steve Blass

Can I build a form in Macromedia Flash and post submissions back to a standard Web server form-handler?

Yes, the Flash Professional version can post form submissions to a plain old Web server, as well as to a Cold Fusion or ASP server. To create a form, choose the Flash Form Application item in the Create New menu item when you launch Flash. Expand the Components pane in the Flash workbench. Build your form layout using the UI Components in the Components pane by dragging and dropping selected elements onto the stage. After laying out the components, use the Properties Inspector (in the Window menu) to set your form element parameters, such as label text and field names. Component properties and behaviors can be customized using Action Script as needed. The Flash forms tutorial on the Macromedia Web site has examples for behaviors, such as clearing all the form fields at the click of a Reset button.

After configuring all the user interface data-entry components, you need to provide an Action Script for gathering the data, submitting the form and displaying the appropriate response, based on the server reply to the form submission. The Action Script language in Flash is an ECMAScript-based language similar to JavaScript. Examples are provided in the tutorial.

After working through the tutorial, you should be able to build forms directly into Flash presentations that can post data back to the Web server technology that you already use.

Blass is a network architect at Change@Work in Houston. He can be reached at dr.internet@changeatwork.com.

Book reviews and virtualization

GEARHEAD
INSIDE THE NETWORK MACHINE

Mark Gibbs

Seeing that Thanksgiving has just shot past us, leaving us with an expanded waistline, we need to slim down in time for packing on the pounds at Christmas.

Unfortunately, there is little in the Gearhead universe that will give you much more than a serious mental workout, unless you count racking up computer gear and unpacking boxes as exercise. Be that as it may, this week we have two topics on our minds: books and virtualization.

First up, books. Over the last few weeks we have got our hands on some books you need to get your hands on.

Our first pick is ***The TCP/IP Guide*** by Charles Kozierok (No Starch Press). Weighing in with an impressive count of 1,539 pages (we hung on every word), this book is the most comprehensive guide to TCP/IP protocols we have ever come across. It also is the most readable. This is a book that will be staying on our shelves, and we highly recommend it. Actually, if you want a workout, just try lifting this volume at arm's length a few times. (Buy it here at www.networkworld.com, DocFinder: 9840).

Next, consider ***The Debian System*** by Martin Krafft (No Starch Press). At 650 pages, this hefty tome, subtitled *Concepts and Techniques*, is not quite in the same league as our last pick, but is remarkable for providing a much larger view of the Debian Linux distro than any book we've seen. (Buy it at DocFinder: 9841).

Debian is the basis of several other distros, including Knoppix (discussed in Gearhead in "More VMware intricacies," DocFinder: 9842), Ubuntu (www.ubuntulinux.org/), and Xandros (www.xandros.com/). As the book explains, Debian is one of the most organized and disciplined open source development projects around.

This book is unusual in that it is much more than a technical discussion — it delves into the philosophy of the system, explains how someone becomes a recognized Debian developer and details the way that Debian is licensed.

> We have two topics on our minds: books and virtualization.

That's not to say the book doesn't get technical. It provides a very well-written, soup-to-nuts explanation of how Debian is organized; how to install, configure and modify the system; and how to administer and secure it. Excellent and highly recommended.

Our next book is back to a topic that we discussed in Gearhead and in Backspin: virtualization. *Virtualization: From the Desktop to the Enterprise* by Chris Wolf and Erik M. Halter (Apress) covers a large chunk of the commercial virtual machine market, including Microsoft Virtual PC and Virtual Server and all of the VMware products. (Buy it at DocFinder: 9843).

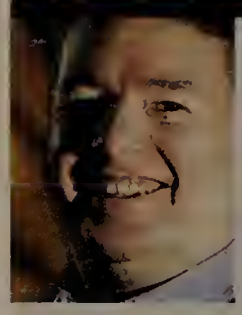
The subtitle is accurate in that the book does span the territory from the desktop to the enterprise and details installation, configuration and management of virtualization products. As for the enterprise end, there are chapters on using virtual file systems, building failover and load-balanced clusters, and virtualizing storage.

What we particularly like about *Virtualization* is that it is detailed and contains lots of information that complements the documentation of the products. This book leads us to our second topic: virtualization, specifically VMware's VMware Player. The VMware Player is essentially a run-time for VMs and works under Windows and Linux. As was noted in Gibbsblog in October when it was released: "Crucially, this isn't just for [VMware's] own VMs, but also for VMs created with Microsoft's own virtual machine environment, Virtual PC [and Virtual Server] as well as Symantec LiveState Recovery disk formats."

Amazingly, the Player is free. The player won't create VMs, but it will run prebuilt ones. A number are available at www.vmware.com/vmtn/vm/.

Among the VMware-provided VMs are Novell SuSE Linux Enterprise Server 9, Novell Linux Desktop 9 Virtual Development Environments, Red Hat Linux Virtual Development Environment, IBM Workplace Express, BEA Weblogic, MySQL Workplace, Oracle 10g, SpikeSource Core Stack (SuSE/Fedora Core 3 with a fully integrated LAMP Stack and more than 50 integrated components and utilities) and the Browser Appliance.

We'll tell you more next week. Tell us what's up at gearhead@gibbs.com and check Gibbsblog (www.networkworld.com/weblogs/gibbsblog/).



CoolTools

Quick takes on high-tech toys. **Keith Shaw**

Attend to the tale of two monitors, one filled with features galore and a whiz-bang widescreen size, the other a simple, square, basic fellow.

Gateway's 21-inch flat-panel monitor can rotate 90 degrees.

The scoop: FPD2185W TFT LCD monitor, about $600, by Gateway.

What it is: A high-definition, 21-inch, flat-panel LCD monitor, the 2185W lets you display two letter-sized documents next to each other without having to toggle between applications or documents. The screen also can rotate 90 degrees into portrait mode, making Web sites display vertically, requiring less scrolling. Multiple inputs, including analog (VGA), digital (DVI-D), composite video, S-Video and component video, let users connect multiple devices to the monitor. A picture-in-picture swap function lets you hit a "swap" button and switch between two video sources. The monitor has a 1,680- by 1,050-pixel resolution, a 1,000-to-1 contrast ratio, 300 nits of brightness and support for more than 16.7 million colors. A height-adjustable stand lets you set up the proper angle for viewing easily, and an optional speaker bar can be attached to provide sound for systems that don't have speakers.

Why it's cool: The 21-inch widescreen display will make you feel like the king of the office — but you also may find that working with documents in which you can put two of them on the screen without toggling between them might win you some productivity points. Of course, it doesn't hurt that watching a DVD movie on this widescreen display is a nice bonus. Rotating the display to show a vertical Web page or to display a long, vertical document also is nice.

I'm always a big fan of monitors that have multiple inputs that let you attach non-computer devices, such as a DVD player and gaming console, so I wasn't disappointed with the options and inputs offered by the 2185W. I happily removed my old CRT monstrosity from my desk and replaced it with this sleek, new monitor.

Some caveats: Unfortunately, my production notebook didn't support the monitor's 1,680 by 1,050 native resolution, so when I connected it to the monitor everything looked stretched out.

Grade: ★★★★½

The scoop: FP71G+ LCD monitor, about $330, by BenQ.

What it is: A flat-panel monitor stripped of fancy features; the FPG71G+ still provides a 17-inch display in a sleek, yet basic, package. The monitor includes an 8 millisec response time, a 500-to-1 contrast ratio and 300 nits of brightness. There is only a VGA connection for a computer; there are no DVI-D inputs, composite or component inputs — a basic, black LCD monitor.

Why it's cool: Aha! You may think that my snobbery for fancy features and multiple inputs would disqualify this monitor as a "Cool Tool." But after not being able to connect the Gateway widescreen up to my existing (ahem, old) notebook, I needed to find a basic monitor that would prevent me from having to lug the CRT monitor back onto my desk. The FPG71G+ fit the bill nicely. For most of my daily work routines, the monitor gave me a sharper image (1,280 by 1,024 resolution) than my old CRT (1,024 by 768).

Some caveats: No whiz-bang video inputs meant I couldn't hook up six devices to the monitor, such as a gaming console, DVD player and other fun equipment.

Grade: ★★★★

Shaw can be reached at kshaw@nww.com.

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On Technology

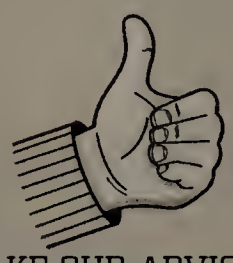
Denise Dubie

The give-and-take of tech advice

There's a reason birds-of-a-feather gatherings draw such interest at industry conferences and case studies are popular stories among Network World readers: People like to learn from their peers.

In that spirit, we've interviewed many of your counterparts over the past two months and assembled a package of stories for this issue to share the wisdom.

For example, Mark Bruhn, Indiana University's acting associate vice president for telecommunications in Indianapolis, found the best way to secure his wireless network, which supports thousands of student devices, was to set aside Wired Equivalent Privacy technology in favor of a set of VPN servers that require end users to input a network ID and password to authenticate themselves.



TAKE OUR ADVICE:
TOP TIPS
FOR NETWORK EXECS
Starts on page 40

David Giambruno, director of strategic infrastructure and security for Pitney Bowes in Stamford, Conn., shares advice on how to approach patch management. Instead of trying to tackle everything in one fell swoop, take an inventory of what you have, determine what can and cannot be patched, and be sure to document all this for upper management. If you don't have documentation, "You are the sacrificial lamb," he says.

When considering network overhauls, Richard Glasberg, director of enterprise communications for the commonwealth of Massachusetts, says the life expectancy of network gear is typically three to five years, and the trick is to time upgrades so you maximize ROI while still acting in a timely enough fashion to reap vendor upgrade credits.

Some network managers are big on the many freeware and open source options available. Rick Beebe, manager of system and network engineering for ITS-Med at Yale University School of Medicine in New Haven, Conn., says, "I have the budget to invest in tools I need, but if I find it in freeware, why spend the money?"

As for me, the best advice I ever got followed a particularly grueling edit of a story I wrote for *Network World*. "Understand the connections," I was instructed. Since then, I have made it my primary mission to know front to back the links between routers and switches, servers and clients, IT shops and their users, IT buyers and their vendors — and perhaps most important, the connection between *Network World* and you, the reader.

— Denise Dubie
Senior Editor
ddubie@nww.com

Opinions

Vision quest

I thoroughly enjoyed Daniel Briere's column "Where's Walt Disney when you need him?" (www.networkworld.com, DocFinder: 9926). I grew up among visionaries like Disney; they're the reason I became an engineer. Engineering was a daring, visionary profession that made the future a reality. Today, there is no vision, no daring; only the immediate bottom line. A while back, engineers ran the great technology companies in the United States. Now accountants run them and try to impose the rules of accounting all the way down to the lowly line engineer, stifling any sense of innovation. Any innovative idea must fit precisely into the process plan only at the appointed time.

This mind-set is rippling down throughout our culture and government. Everything is about immediate gratification. Nowhere do you see commitment, strategic thinking, long-term investment, basic research or innovation. If this trend doesn't turn around, we will soon take a technological back seat to the rest of the world.

Jonathan Hujsak
San Diego

Fond memories of Fore

Thanks to Johna Till Johnson for her column "A fond farewell to Fore Systems" (DocFinder: 9927). I worked there for almost five years as a quality-assurance engineer. In QA, we did our very best to "break stuff," but it wasn't easy; as Johnson states, the gear was rock-solid. We took great pride in our work.

We thought of ourselves as extended family — so much so that last year more than 2,000 former Fore employees attended a reunion at Heinz Field in Pittsburgh. We rented out the banquet facilities so that we could toast the "little company that could ... and did" at midnight on 04/04/04. We continue to stay in touch with one another, have an alumni Web site and mailing lists for our own "Fore network." I challenge you to find another company that has that kind of loyalty.

We don't live in the past, but rather use our experiences at Fore to remember what an ideal work environment was. We had a reputation for being a group of twenty-something party animals who played foosball, had catered Friday happy hours and slept in hammocks. We did do that, but we also worked our behinds off. Fore's work philosophy was one of self-governance. There were no set work hours. I worked with people who would come in at noon and people who came in at 4 a.m. Everyone received stock options, even the admins and mail clerks.

We had a full gym and a cafeteria that had high-chairs for the little ones. Babies and toddlers were welcome during the day, although not at meetings. I had lunch with my wife and son two or three times a week. I'd change his diapers in my office, while my boss and I were having development conversations.

I'll leave you with the standard demo that would usually close a deal for us. We would start streaming "Top Gun" across an array of switches to multiple PCs and workstations. Then one by one, we would remove the redundant network cards, redundant power supplies and finally the dual processor cards that contained the CPUs. At this point all that was left was a single network card in each switch with the fiber connections stringing across the array of gutted switches with 90% of everything removed, piled on the floor — and nobody ever saw a frame of the movie skip.

Michael Kurzawa
Oakmont, Pa.

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

nww.com **Readers respond**

Find out what readers are saying about these and other topics. **DocFinder: 1030**

SOX WATCH
Michael Kamens

Tips toward surviving a SOX audit

Just the mention of a Sarbanes-Oxley audit provokes horror stories of inordinate time spent providing evidence; complying with written policies, procedures and guidelines; and attending countless meetings. Sorry to say, but life is not going to get easier until you make SOX a part of your daily routine and take an active role in the entire audit process.

In more than 70 IT security audits and three full-scale SOX engagements at Fortune 100, 500 and 1000 companies since 2002, I have witnessed both the best and worst practices and approaches to compliance. Why is it that so many educated, driven individuals seem unable to use the numerous, readily available sources of data to stand up and challenge the interpretations of SOX to which they are subjected? Instead, they blindly accept the mandates set forth by the very people who have a vested financial interest in how the SOX audit is run.

Some knowledgeable external auditors have eliminated many controls that had to be satisfied last year. They made these changes after realizing their understanding of SOX should change to be more closely in line with the intent of the law. Other auditors are unwilling to modify the audit controls they consider critical. Often there is a direct correlation between this inflexibility and lack of real-world, hands-on experience.

Unless you and your company's audit group have a full understanding of SOX, you won't be able to question the external auditors' template of what they expect. The Web sites of the Information Systems Audit and Control Association (www.isaca.org), Institute of Internal Auditors (www.iia.com) and Public Company Accounting Oversight Board (www.pcaob.com) offer a wealth of information about SOX.

> Life is not going to get easier until you make SOX a part of your daily routine.

There are six major SOX pitfalls you're likely to encounter:

- Too many controls selected to meet compliance. You can reduce these by having an educated understanding of what the actual law asks for.
- Lack of documented policies, procedures and guidelines; poorly drafted control activities and poorly documented test procedures.
- Lack of an organized internal audit-team structure. Your company needs financial and IT auditors, or you face seeking out consultants on the fly without verifying their capabilities.
- Failures discovered during the initial audit but not remedied. The additional time required to fix these problems increases audit costs.
- Insufficient or missing evidence. You and your auditors must agree as to whether your evidence controls are satisfactory. Keep evidence in one place, properly cataloged for easy access.
- No correlation between control activities and risks. You cannot take the verbiage of a control activity and make it fit the risk; you must take the time to ensure you have satisfied its intent.

In general, SOX pitfalls can be avoided through knowledge, an organized team managed by a senior executive authorized to implement the necessary mandates, detailed explanations of the controls and the tests required to satisfy them, and buy-in from the entire company.

Kamens has a law degree and is a certified information security manager and independent IT security/SOX auditor. He can be reached at mike@kamens.org.

ABOVE THE CLOUD
James Kobielus

Clients virtualize beyond recognition

Client virtualization is an underlying theme in many recent industry announcements. In virtualization, the external interface of every service becomes unmoored from its implementation in particular physical platforms, operating systems, application frameworks and software components. Essentially, a client becomes virtualized when its GUI grows abstracted from the resources of the local access device, be it a PC, handheld or other computer. The virtualized client may rely on both local and remote network resources to render its interface, furnish its processing power, store its data, route its print jobs and handle other core client functions. Users remain blissfully unaware of what blend of distributed resources is actually driving their presentation experience.

Vendors are avidly exploring ways to virtualize client environments. Take Microsoft Windows Vista, for example. In the long, tortured ramp-up to the release of this client operating system, Microsoft has removed most of the new functional components — including security and file-system enhancements — that were supposed to make Vista worth waiting for. What's primarily left is a client virtualization technology called Windows Presentation Foundation (WPF), which allows the Windows GUI to be dynamically rendered, tailored and customized by applications, in keeping with a declarative markup syntax called Extensible Application Markup Language (XAML). Essentially, WPF/XAML enables a virtualized separation of the Windows presentation interface from the underlying application code.

Microsoft has even decoupled WPF/XAML from Vista, taking the Windows platform another step down the road to total virtualization. WPF/XAML — and all Vista features — also will be made available as retrofits for legacy Windows operating systems, including XP and Server 2003. Essentially, this new technology will become the virtualized presentation layer to all Windows versions.

There's even more to Microsoft's client virtualization story. Earlier this month, Microsoft announced its Windows Live strategy, under which operating system and application features will be provided as hosted software as a service. Essentially, Live is aimed at making free Microsoft-hosted services — such as e-mail, instant messaging, search, file sharing, VoIP, software delivery and RSS aggregation — integral to Microsoft's not-free client software. When the client operating system goes "live," per Microsoft's strategy, it blurs the practical boundary between those functions the client performs from local resources and those it relies on the service fabric to accomplish.

> Virtualization is transforming client-side computing.

But let's not give Microsoft all the credit for the trend toward client virtualization. Enriched browsers of all varieties — including Macromedia Flash and other vendors' plug-ins — are blurring the practical distinction between clients and servers even further. Enriched browsers such as those supporting Asynchronous JavaScript + XML (AJAX) deliver a more GUI-like user experience than a basic browser. AJAX-capable browsers, such as Internet Explorer and Firefox, shift the presentation emphasis away from downloading individual Web pages toward navigating within richer, structured, client-side content caches. The enriched browser can execute more application logic, cache more content and perform more rendering locally than a basic browser. And it offloads some or all of these functions from portals, Web sites and other presentation servers.

The offloading can go both ways, of course: Most of the processing power of PCs can be centralized into server chassis, per the network PC approach first introduced in the late 1990s. A new twist on that approach — the blade PC — is the most important development in desktop management in many years. Blades from pioneers HP, ClearCube and IBM virtualize desktop resources into manageable slices of a server's centralized resources, transforming the innards of each PC into a blade that can be installed in a server chassis. The user relies on a thin-client windowing protocol such as Citrix's Independent Computing Architecture to interface remotely to what is, essentially, a full-featured dedicated PC.

Clearly, virtualization is transforming client-side computing beyond all recognition. The presentation tier is blurring into the application-server, middleware and networking infrastructures.

Kobielus is a senior technical systems analyst at Exostar, a business-to-business trading exchange serving the aerospace and defense industry. He can be reached at (703) 924-6225 or james_kobielus@hotmail.com.

TAKE OUR ADVICE:

TOP TIPS FOR NETWORK EXECS

What works and why

IT experts offer their advice on top technologies including VoIP, patching, WAN services, SOA, security. **Page 44.**

When to upgrade

Insiders share their experiences about equipment life cycles. **Page 49.**

Something for nothing

Where to find and how to take advantage of freeware and open source applications. **Page 51.**

Indiana University goes wireless

University network exec shares experiences and challenges of rolling out wireless across two campuses. **Page 53.**

Taking charge

Tips and tricks for tackling your responsibilities as a manager of people, projects and vendors. **Page 56.**

The give and take of tech advice

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Illustrations by Harry Campbell

The best

Network professionals, industry watchers an

■ BY DENISE DUBIE AND JIM DUFFY

AS ADVICE COLUMNIST ANN LANDERS ONCE WROTE, "Know when to tune out. If you listen to too much advice, you may wind up making other people's mistakes."

In the network world, Landers' notion is well-heeded. The trick, of course is deciding which advice can make your life easier and which could derail your career.

Network World took an informal poll of our readers, network executives and others to find out what was the best advice they ever received and what they did with it. Not surprisingly, the results show that the best advice is to learn about what goes on in your IT shop, being open to its rapidly changing nature and understanding how networks are the backbone of business. It also doesn't hurt if you can solve technology problems, manage others as a team and keep customers happy.

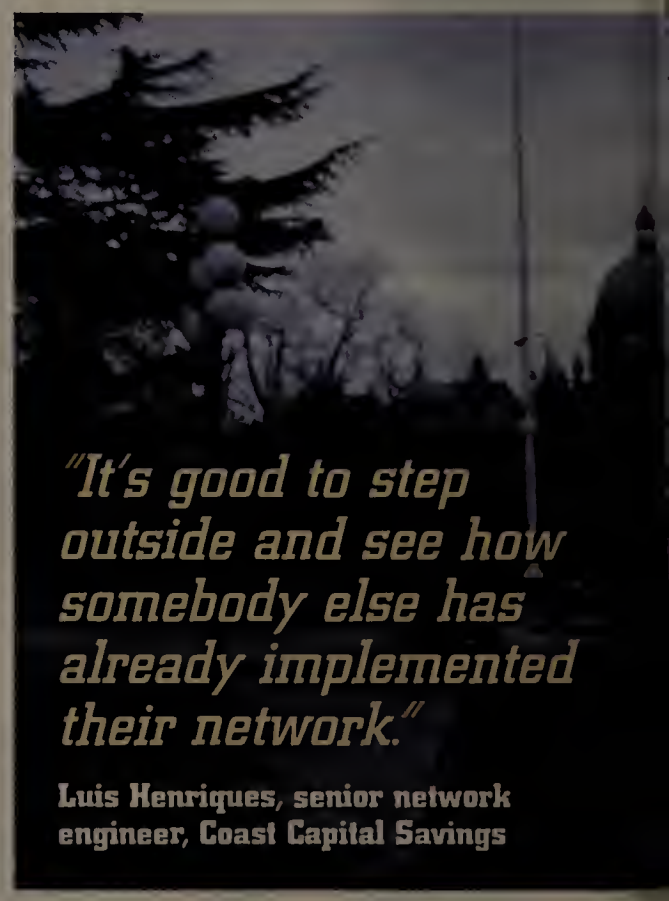
Specifically, the best advice to get ahead in the network arena starts with the basics. Network executives say learning the details of networks and the equipment that runs on them will get you far.

"You can never see too many networks," says Luis Henriques, senior network engineer at Coast Capital Savings in Vancouver, the second-largest credit union in Canada.

When he began his career, about 10 years ago, Henriques saw the "one little network" his small company had implemented and thought he had seen it all — until he moved to his next employer.

By the time Henriques was at his third company, his boss told him to go out and see as many networks as he could so he could advise his employer about how to implement its own new technology. "He said, 'We don't really know how this works, so I want you to go and meet these other companies and talk to their networking people and see how they do this,'" Henriques explains.

Henriques says that while he was working for a telecom service provider, the customers showed him a thing or two.



"It's good to step outside and see how somebody else has already implemented their network."

Luis Henriques, senior network engineer, Coast Capital Savings

advice I ever got

vendor executives share the tips that helped them get ahead.

"Time passes by, technology changes. That's yet another reason to keep seeing more networks ... throughout your career, because it's too hard to keep up with everything. Now and then it's good to step outside and go see how somebody else has already implemented their network," he says.

But before examining networks, practitioners might immerse themselves in the basics of the things attached to the networks. Such as PCs.

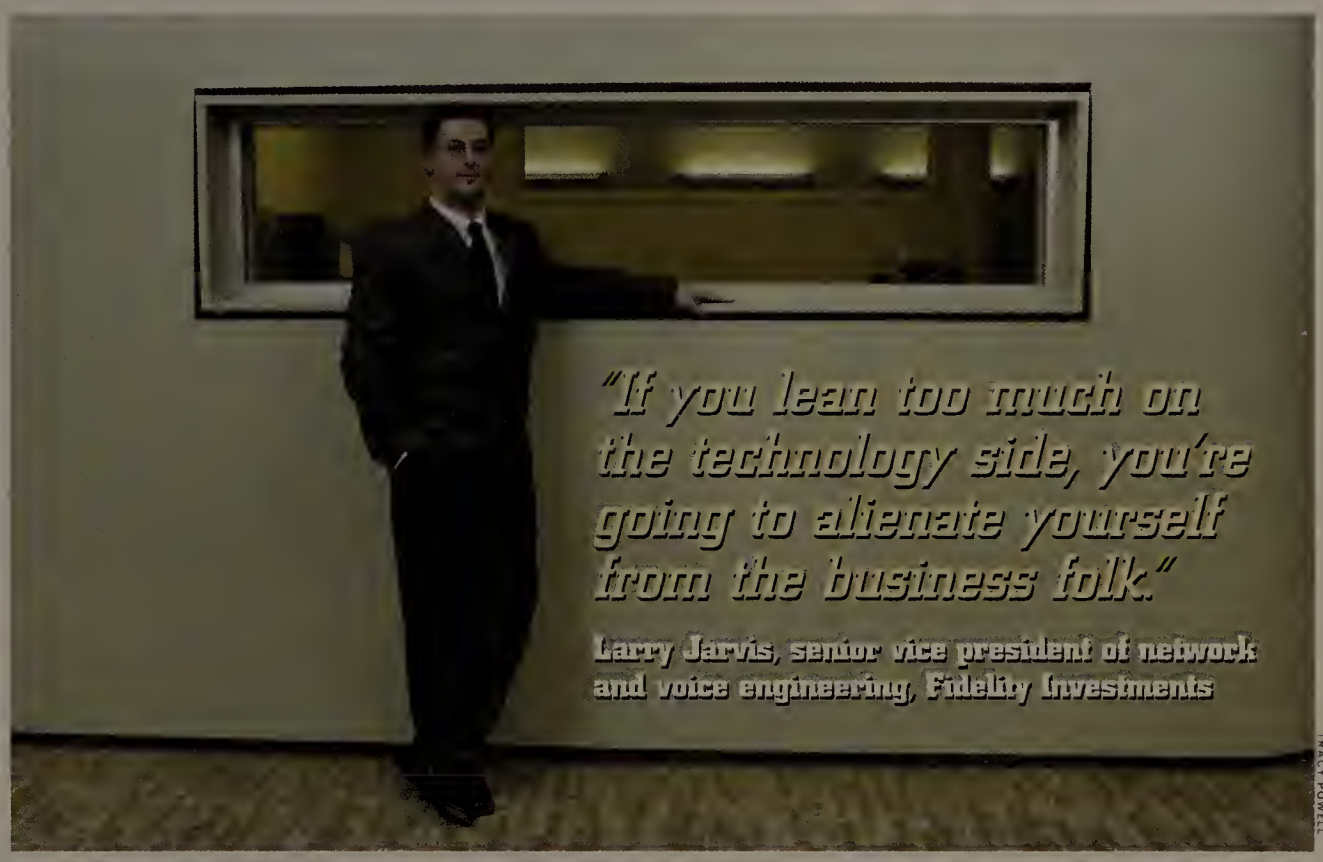
Craig Paul, systems software analyst in the Applications Technology Group at the Kansas University Computer Center in Lawrence, says the best advice he's received and would give is to learn the basics of computer hardware architectures.

"Routers are essentially special-purpose computers," Paul says. "If you study about computer architecture, you learn about I/O buses and things that computers can do in terms of memory and memory protection. It also leads to the realization that most host computers could be routers ... and can be firewalled even without a firewall."

Paul says there are some people he works with — even those higher in the management pecking order — who have no idea about internal computing architectures.

Paul recalls a Java course in which he says the instructor and many students didn't know such deep details about computing architectures, such as memory paging sizes and page-size restriction. Paul even volunteered after class to instruct the embarrassed teacher about Java behavior so the instructor could impart that knowledge to the class.

STUART MCCALL



TRACY POWELL

Be business-savvy

Even those pursuing the executive ranks should become conversant in technology. Learn to balance technical acumen with business savvy, says Larry Jarvis, senior vice president of network and voice engineering for Fidelity Investments in Boston.

"I seem to see consistently one of two types of executives: One is the type that came up through the technology ranks and was promoted into management ... with little to no formal management training. And then executives that come out of more of the business-school side and don't grasp the technology," Jarvis explains. "While they have good leadership skills, their ability to lead these highly technical teams wanes, because they can't have that dialogue with those contributors that are really making it happen."

Jarvis says he went through a rigorous conversion from technology into management early in his career at a former Fortune 500 employer.

"They really encouraged folks coming from technology into management with a very formalized training program to make that transition," Jarvis says. The advice was, you focus on the customers and the requirements of your customer, focus on your team, run your technology like a business, and you will be successful as a manager, Jarvis says.

"As easy as that may sound, managers that can do that successfully ... [find it] a very difficult challenge. I think that's what makes a great leader in the technology-skills space," Jarvis says.

But so many network and business executives struggle because they are either well-versed in the nitty-gritty technology details, or they only know the business perspective. Focusing on only one of the two results in failure, Jarvis says.

"If you go too far to the business side ... morale on the employee side goes down. The productivity starts to drop dramatically, because those troops lined up before you, they don't want to work for you anymore. You lost their loyalty," he says. "If you lean too much on the technology side, you're going to alienate yourself from the business folks. They get religious about the technology, and they forget why they exist. They exist to move the business, the revenue side of the house forward."

Striking the balance between technology resources and business demands for your team can help you get ahead in networking, says Rich Glasberg, director of enterprise communications for the commonwealth of Massachusetts in Boston. Glasberg says a mix of hands-on training in leading-edge

technology along with the smarts to understand how the organization depends upon the technology pushed his career forward.

"Not every piece of this business is for everyone; you have to capitalize on getting into the business if you have those skills," he says. Among the skills Glasberg notes is being able to manage people as well as technology and determining the next technology moves without losing focus on what the company, or in his case, the commonwealth needs.

For Debbie Joy, lead solution architect with Computer Sciences Corp., the best advice she ever got in her 22-year network career helped her advance from a technician to a director of technology. Joy explains that a manager leaving his position advised her not to complain about the technology shortcomings or personnel problems in the department to the incoming boss without also having a solution to offer.

"If you are going to go to management or a senior technician with a problem, you'd better have a solution, or you will just sound like a complainer," Joy says. "I laid out what was wrong with our department, how it could be run better, and the new manager told me to write it up and get to work. That's when I transitioned from a technologist to a problem solver and business-related employee."

The advancement taught Joy: "Knowing the technology inside and out just isn't enough anymore; you have to be able to apply it to your business and learn how to apply it to another business when you change positions."

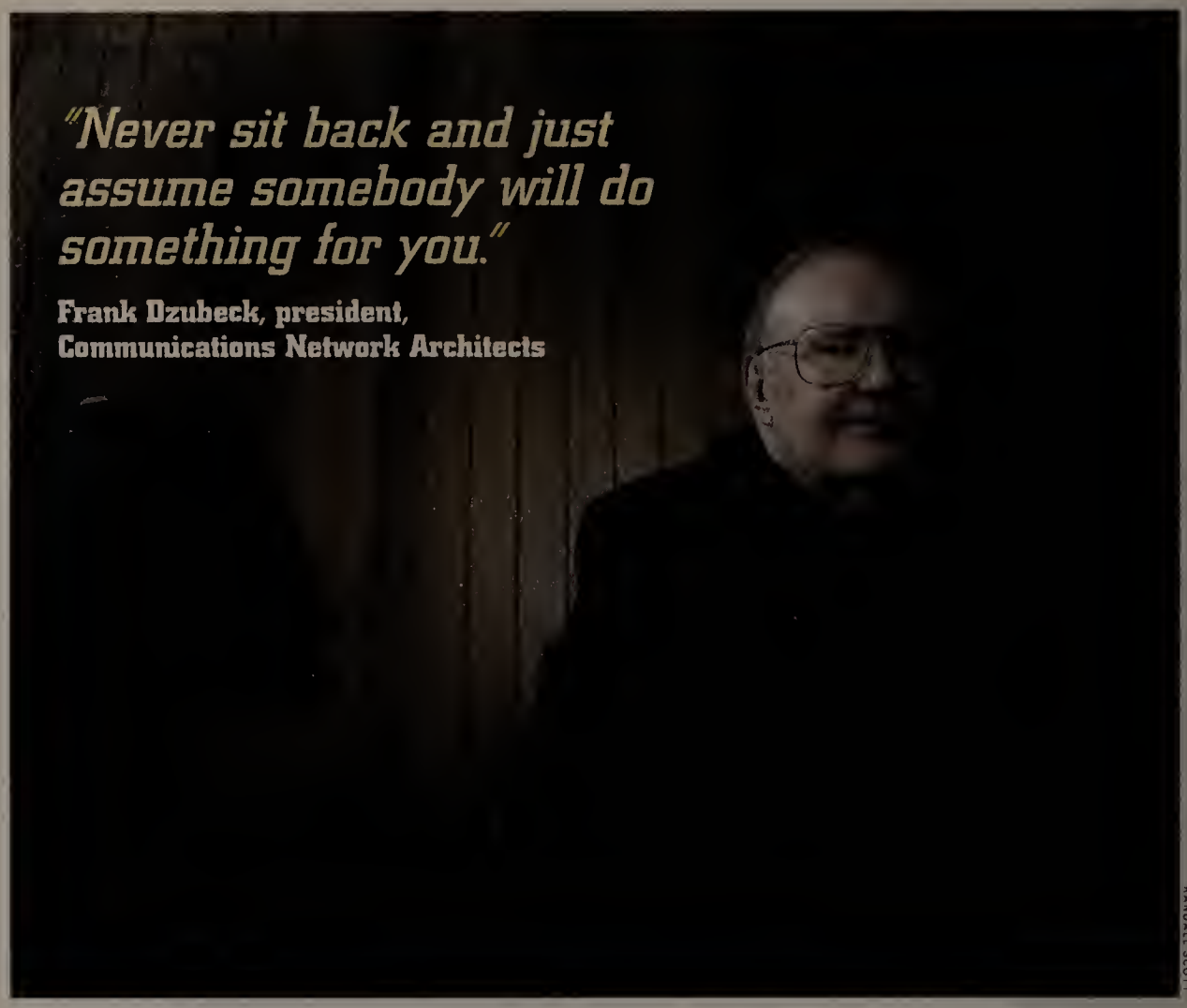
Rich Ptak, principal analyst at market research firm Ptak, Noel & Associates, says he witnessed the demise of Digital Equipment Corp. (DEC) because he believes Ken Olsen and others at the time didn't recognize how the management of the business tied back into the success of the technology. For Ptak, the realization was an epiphany that led him away from his technologist roles to become an industry analyst.

"Management was just a secondary task at the time," Ptak explains. "The real crux of networking is that it's made up of a bunch of componentized devices that when connected make the business run smoothly. It wasn't that DEC had bad technology or products; it was that the management of the business wasn't incorporated into them."

Network professionals must also balance the effectiveness of their current skills against investigating leading-edge technologies that could advance their careers. Focusing only on the day-to-day operations vs. exploring new tools and processes can mean the difference between advancing in the organization or being left behind in an ineffective position.

Chris Gahagan, senior vice president of EMC Software, started his career at HP and says he recognized the importance of the network but also its role of providing connectivity to the applications and services that run on it. For him, getting ahead required moving to SpectraLogic to explore what at the time was a new area of networking, backup.

"What I saw in the late 1980s and early 1990s was that the network was an enabler for a lot of other technologies and that the network could add value to other applications and services," he explains. "I left HP, but was able to start up the software part of a business based on what the network could enable."



CSC's Joy points out that often those in technology positions get stuck in a rut of specialization. She offers advice along the same lines as Gahagan: be open to changing your focus before your role becomes obsolete.

"Often you get to the point where you can't go higher doing that thing that you loved so much," she says. "But then a light bulb goes off, and it's obvious that you can get ahead with a new technology, which you will also learn to love."

Brian Jones, manager of network engineering and operations manager at Virginia Polytechnic Institute and State University in Blacksburg, says his success in networking comes from a broad understanding of network technologies and the capabilities to apply them in a specialized way. Also with the ever-changing nature of technology, he says embracing change in your current position will serve you in the long run.

"The best advice I could offer would be to not get too comfortable with where you are in an IT organization if you plan to move up the chain. Embrace change, because the technology is changing; either you move with it, or it moves without you," he says. "Stay up-to-date with how the new technologies may affect the way you do things within your organization, and keep a broad view, because a narrow focus can be costly — just ask the people who invested lots of money in ATM as a LAN delivery system."

Persistence long has been a home run for oft-quoted industry watcher Frank Dzubeck. Dzubeck, president of consultancy Communications Network Architects, learned early on in his 40-year career not to become complacent.

"If you start to get lackadaisical and start to enjoy yourself and sit back, it just doesn't work," Dzubeck says. "Because everything changes. That has kept me steady all the way through."

That's just one piece of the lifelong advice Dzubeck received when he was a 22-year-old systems representative at RCA, a now-defunct, Washington, D.C., computer company with customers in the government and military markets. The other advice was to be creative and to always take risk.

"Never sit back and just assume somebody will do something for you," he says.

"The computer industry was extremely young at that time, and everybody that I worked with came from the government or the military," he says. "They didn't look at the clock."

Tom Bishop, CTO of BMC Software with 20 years of experience at such companies as IBM Tivoli and start-up Cesura (formerly Vieo), says network professionals need to be evolving at all times to stay relevant to their companies.

"The best advice I got and can offer is to continually ask yourself, 'Am I doing what the organization needs me to do?' If you aren't, then someone is not happy with you." Bishop says. "The answer to the question should always change in terms of what you should be doing to be useful to the organization. Today it's all about business-oriented IT, and holding onto any old view of networking will only make you a dinosaur in your IT shop." ■

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What works and why

IT experts offer their advice on top technologies including VoIP, patching, WAN services, SOA, security and more.

BY THE NETWORK WORLD STAFF

Good advice is generally as welcome as it is hard to come by. Add "free" to the equation, and we're talking rare indeed.

In this segment, *Network World* reporters have turned to IT and other experts who are willing to share some of their favorite insights on a range of topics facing today's network professionals. Topics include:

- Planning a VoIP rollout? Keep both hands on the reins lest "feature envy" take a heavy toll.
- "Patch, patch, patch, test, test, test:" There's more to it, but that's a good place to start.
- Want the latest and greatest WAN services? Don't get locked into the moldy oldies.
- How is service-oriented architecture like dieting? Find out here.
- Managing network security begins with managing the people who make it happen.
- If you think e-mail archiving is too expensive, consider the cost of not doing it.

Details follow — did we mention this is free?

VoIP: Ask questions upfront

BY TIM GREENE AND PHIL HOCHMUTH

Unforeseen VoIP glitches range from who gets the fancy phones to how you track phone use by department so you can bill them for what they use.

The phone project manager should have veto power over who requires more than a standard handset, or department heads will start dishing out the more expensive, feature-rich models to people who really don't need them. "They want the phones with more buttons," says Roger Fahnestock, IT director for Kane County government in Illinois.

IP call servers log calls, but don't translate them into calls by department or flag the calls that cross the public phone network and incur toll charges. Customers should plan to buy software that converts the logs into readable bills if they hope to charge departments.

Businesses need to figure out how costs will be divided for VoIP, because it raises all sorts of questions. If a department gets one more employee, does it pay for the phone? If all the ports on that department's switch are full, who pays for another switch? If the IT department pays, what is a good way to plan for such unexpected costs?

Businesses must figure out how long they want the phones to work when the power fails. A one-unit battery backup may support a group of phones for 20 minutes, but it may require extended-run battery modules to keep phones up for three hours. That means planning for the cost of the backups but also figuring out whether there's enough space in the wiring closet to house them. In some cases, a back-up generator may be a better option.

Vendors have 911 schemes that link corporate IP phones to physical locations so ambulances can find the person who made a call for help, but these systems must interface with carrier 911 networks. Expect to dedicate time to make that interface work properly, because it is far from standard.

Departments left to set up their own interactive voice-response systems may come back to IT for help because they don't have a good sense of how to set them up. For example, one user cited a department that created 10 options for callers to choose, forced them to listen to all 10 before they could punch a number, and had no option to bump out to an operator. As a result, everybody was hanging up in frustration before they made a selection. Then the department head complained that the phones weren't working because there were no inbound calls.

If VoIP is intended to minimize the number of phone lines, businesses should plan to install a fax server to get rid of analog fax lines. And if modems are necessary, plan to keep analog lines to support them or be prepared to suffer with temperamental analog-to-digital modem-conversion gear.

Patching: First, it's not impossible

BY JOHN FONTANA

"Patch, patch, patch, test, test, test, test," says Tim Rice, a network systems analyst in the department of medicine at Duke University in

See Tips, page 46

TAKE OUR ADVICE: *More tips on these subjects can be found at* ***www.networkworld.com****, DocFinder: 9943.*

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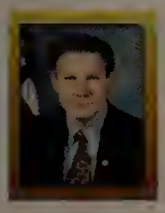

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Tips

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Durham, N.C. Those two steps, repeated in multiples year in and year out, more than any others are the keys to patching systems from any vendor. Rice doesn't apologize for the apparent simplicity, because he knows the task is anything but.

What most IT managers say is that it takes a process to save a village.

David Giambruno agrees with that. His tip? "Fail fast."

For Giambruno, director of strategic infrastructure and security for Pitney Bowes in Stamford, Conn., that means he knows where his pain points are in the network and he has documented why and how they may fail. "Fix the pain points last. Find out what is problematic, and once you do that, you will find you have a large area that is probably pretty easy to patch and [is] pretty vanilla. You get comfortable, and you can do those areas quickly."

As for the pain points? "You are going to have to ask for forgiveness initially," Giambruno says. But eventually, you document why certain systems are not patched or protected in other ways, such as with firewalls, because of aging applications, configurations, hardware or department heads with their own issues. Documenting those anomalies lets you answer intelligently the inevitable C-level question: "Why weren't those systems patched?"

Giambruno says if you can't answer that question, "you are the sacrificial lamb at that point."

Duke's Rice also has tips for keeping client upgrades as easy as possible. "Keep the hardware consistent. Windows XP is making that a lot easier," he says. "We build an image, put all of our software on that image, do a system prep and drop the image on the hardware. At most, we run a repair."

For Bruce Alcock, IT architect for Integris Health in Oklahoma City, Okla., one of the keys to client upgrades is preparation. His organization has forced end users to put their key files on network shares. "Everything is already on the network, so we've found this is not only beneficial for client upgrades, but if a user's PC goes out, they lose whatever is on the local drive. Forcing them to the network solves lots of problems."

WAN services: Maintaining flexibility is key

BY JIM DUFFY

WAN services experts recommend working flexibility into your contracts: Technology changes fast, as do prices, so they advise you to structure contracts that keep options open.

Coast Capital Savings of Vancouver, the second-largest credit union in Canada, has WAN contracts that run three to five years. Three years ago, the company intermeshed 58 offices with fiber services running VoIP to 2,000 phones.

At the time, the company negotiated "partial QoS" for this network. Had the company known that its telephone company would roll out MPLS-based services, it would have grandfathered in tighter QoS guarantees based on MPLS.

"Three years ago I didn't know much about MPLS," says Luis Henriques, senior network engineer for Coast Capital Savings. "Right now, we're running over a partial QoS network that's working 99% of the time, but we do still have 1% worth of problems. You're signing for such a long time, and it's hard to know what new technologies are going to come out there."

Procurement consultants concur.

"If you say, I'm going to do nothing — I'm going to keep the network I have and just get a lower price — that used to be a good strategy in the short term, but it won't work in the long term," says David Rohde, a senior analyst at TechCaliber. "You've got to make some sort of decision about your technology migration now."

Henriques also recommends working the best WAN prices into your contract, whether that price is available when you negotiate the contract or a few years down the road when you need those circuits.

"Today, a 10M bit/sec link costs you $1,000, but you don't actually need any today. In three years, it only costs $200, but according to your contract you're bound to buying it for $1,000," he explains. "You'll want a clause in there to say you'll be guaranteed the best price at the time."

Users should also grandfather service-level agreements into any new circuits they add during the life of the contract.

"When we signed our contract we had 45 branches," Henriques says. "Since then, we've grown and added quite a few more. Fortunately, in that contract was a statement that said that any new links will adhere to the technical agreements in the contract, and they will expire at the same time in the contract. You want all your links to expire, as far as the contract is concerned, at the same time. Otherwise, it's harder to manage and harder to negotiate a new contract when things are expiring at different times."

Lastly, if any hardware is needed, Henriques suggests negotiating new equipment purchases with your WAN service provider. They've already bought a bunch of gear for their own networks and have wrung the best prices out of the vendor, he says.

"We took the opportunity to put in that contract that we would have a very low cost — a wholesale price plus a percentage, which is much better than we were able to get from any other networking vendor," Henriques says. "We saved thousands of dollars with that."

SOA: Here's the real skinny

BY ANN BEDNARZ

Creating a service-oriented architecture is like dieting: As much as it's tempting to shell out money for the latest promising gimmick, the reality is that reaching the goal requires a significant lifestyle change.

"Weight loss is a very much like SOA in that it's a discipline," says Ron Schmelzer, a senior analyst at research firm ZapThink. "It's more important to change the behavior, if you want to change the outcome, than it is to buy something new."

An SOA is a platform for building modular, reusable application components that can be called and combined without the integration pains of past development efforts. Pursuing an SOA approach promises to make new and existing IT assets more flexible — and therefore more easily tapped for use in different, innovative ways.

But like the latest diet fad, the SOA approach is vulnerable to backlash from unfulfilled expectations. For example, reuse of services is a key element of an SOA, but it can be very difficult to achieve if teams are unwilling to share applications, says David Chappell, principal of research and consulting firm Chappell & Associates.

Companies can try exerting pressure from top management, or implementing a charge-back policy whereby internal customers pay the internal service suppliers, or selling the idea of reuse, because it's best for the company as a whole — but none of these approaches is easy, Chappell says. "I've talked to organizations whose SOA efforts stopped dead because they couldn't deal

with this problem."

Another roadblock to SOA adoption is the tendency for companies to gravitate to familiar technologies.

A lot of people are pinning their hopes on the emerging category of enterprise service bus (ESB) products, many of which are little more than old-school messaging brokers with new labels, Schmelzer says. Adding more of the same, familiar infrastructure products just continues the cycle of technology rip-and-replace, he says.

"People are really overestimating the ability for these ESB products to deliver a service-oriented architecture for them." On the other hand, the importance of tools that support a change in development behavior — such as process-modeling tools, metadata management and registry products — are underestimated, Schmelzer says.

Equally important to the success of SOA is understanding when it's appropriate. Zeroing in on a specific business need can help companies make decisions about how much of their existing applications to service-enable, says Theo Beack, chief SOA architect at Software AG. In many cases, exposing 20% or 30% of the functionality of an existing legacy application as a Web service can yield the most benefit. "That's where the sweet spot lies," Beack says.

It's also important to understand that not every new application should be built in a service-oriented style. It takes more effort to design, create and secure a service-oriented application than a traditional multitier application, and not all applications are likely to repay the expense, Chappell says. "An application that's meant to be used only by a relatively small group in an organization might not be worth the expense of being built in a service-oriented fashion," he says.

Key to avoiding wasted resources is having the right people behind an SOA effort. A lot of good developers make lousy architects, Schmelzer says. Companies today are hiring architects that are measured against business goals — such as how quickly a service will return value to the business — not traditional development goals.

"If we can get it right, the emergence of the architect class will be a pretty significant transformation for the IT industry."

Security: Think people first

BY ELLEN MESSMER

Managing security is as much about managing people as it is software and hardware, say those who do it for a living.

Kirk Drake, vice president of IT at the NIH Federal Credit Union in Rockville, Md., says one of his favorite management tactics is touching base every day with the IT staff in charge of network and applications.

"I figure out the things that absolutely shouldn't go wrong, from routers to financial things such as dividend postings and check files, and accept no compromise," Drake says. "I send out periodic reminders and check to make sure that things get done."

This approach is intended to get ahead of problems through regular contact with the dozen IT staff members that support the back-end applications and the online banking used by the 45,000 credit-union customers.

"I look at log reports and ask questions," Drake says, noting constant dialog with staff has been crucial in deploying newer technologies, such as data-leakage prevention to stop unauthorized transmission of sensitive customer information.

Jack Mackenzie, principal information security engineer at mortgage insurance company Radian Group in Philadelphia, says the tip he'd offer first also has to do with helping people be more effective in their jobs. Radian Group has five security specialists interacting with an IT staff totaling 140.

In the past, IT staff would tend to describe problems they'd encountered, depositing them at his doorstep, waiting for him to discover something that might resolve them. But that method didn't lead to successful resolution very quickly, he says.

Mackenzie now lives by the adage that "I never take others' problems and make them my own. I'll steer them toward solving it." He says he helps staff with analysis, answers questions and suggests security approaches, but makes it clear he expects those directly in charge will execute any necessary changes. And he checks to see that it happens.

He says this approach encourages IT staff to more directly confront security concerns, and "problem-solve and bring the solution back."

E-mail archiving: Better safe than sorry

BY DENI CONNOR

While many organizations implement e-mail archiving for regulatory compliance or evidentiary discovery purposes, Paul Veeneman, chief technology engineer for Hawkins Chemical in Minneapolis, had an entirely different reason: He wanted to protect one of his company's most business-critical applications: its Microsoft Exchange database.

Veeneman had been protecting his Exchange 5.5 server with daily, weekly and monthly full backups. While he had backups of Exchange that he kept for a year, from time to time he might lose e-mail between backups.

"We wanted to look at scenarios that could cause potential harm to the users or business unit if data was lost," he says. "E-mail is one of the most important applications to our organization and we wanted to move it to an archival platform."

The company also wanted to be able to archive more than a year's data.

"Being publicly traded, we wanted to do due diligence to our shareholders and ensure that our data is archived or backed up in the best fashion," Veeneman says. "Although we don't have the same requirements as a company with a trading desk, and we aren't burdened with finding the irrefutable truth for litigation, being able to recover e-mail has come in handy when someone lost a message."

Veeneman chose Intradyn's ComplianceVault, an e-mail archiving and recovery appliance. ComplianceVault connects to the Ethernet network and is bundled with Sony AIT tape drives, where e-mail data is archived. A rules-based engine allows Veeneman to decide when e-mail is migrated and archived and how it can be recovered.

Veeneman says being compliant wasn't completely a matter of out of sight, out of mind.

"With Sarbanes-Oxley, we are definitely being held to a higher standard in protecting the data and making sure the data is available even if the user or system loses data," Veeneman says.

He says setting up e-mail archiving also involves determining which users have the ability to recover messages. In Hawkins' case, Veeneman chose a limited set of individuals.

"We don't give end users the ability to get in and retrieve their own data — that creates a Pandora's Box," Veeneman says. "What we have done is gone through a secure hierarchy of two to three users who can access e-mail — IT, human resources and two for the desktop IT group."

"There's a potential for malicious activity, and giving human resources access protects us from that," he says.■

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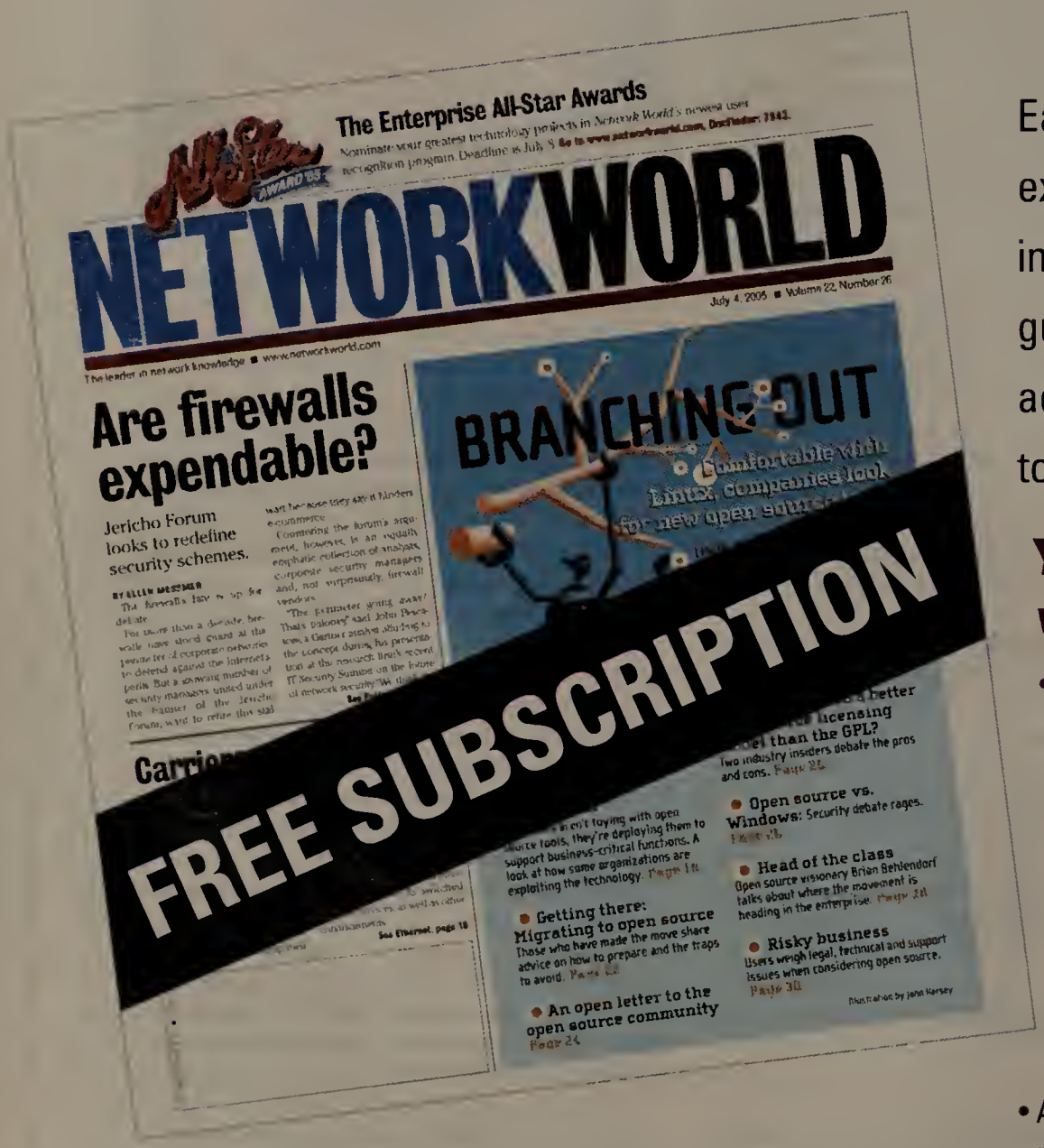

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When to upgrade

Insiders share rules of thumb about equipment life cycles.

■ BY JOHN DIX

There are no hard-and-fast rules about the life expectancy of network equipment because it varies by device and situation. But wouldn't it be nice to know industry norms the next time you had to choose between polishing up a box or taking an ax to it?

Given the dearth of solid data on the subject, we surveyed the product-test experts in the Network World Lab Alliance and members of the Network World Advisory Board — executives in top IT spots in local Massachusetts organizations — for tips on when enough is enough.

The findings, as one respondent put it, confirm shop-honed intuition. The average life expectancy of hardware is three to five years, while equipment in fast-evolving markets, such as security, is being replaced in three years or less, and larger iron often hangs around for decades.

"We have some stuff that is eight or nine years old that just sits there and runs," says Richard Glasberg, director of enterprise communications for the commonwealth of Massachusetts. "But the rule of thumb for network infrastructure is three to five years. If you're trying to keep things humming along at 99.999% uptime, you'll question anything much older than that."

Besides upgrading equipment to stave off failure, another classic driver of change is the old software/hardware upgrade cycle, most famously witnessed in the PC/Windows realm.

"Advances in software mandates hardware changes, which serves as the platform until it no longer meets the needs of the software, so you change the hardware underneath and the dance continues," says Tom Henderson, principal researcher for ExtremeLabs in Indianapolis, a Lab Alliance partner.

Survey respondents expect Windows-based PCs to last 3.5 years on average, although some question whether that is about to change.

"There was a lot of thrash when we went from Windows 95 to 98 to 2000 and then to XP, with Microsoft upping the ante on how much resources you needed," says Lab Alliance member Joel Snyder, a senior partner at OpusOne, a consulting firm in Tucson, Ariz. "But things have been quiet since XP came out. XP-based systems may actually end up lasting five or more years — first, because there isn't a new operating system [in the immediate future], and second, anything that is XP-compatible probably has sufficient CPU and memory to run for quite a while."

Fast-evolving performance and capacity demands are, of course, at the root of many decisions to replace gear, from switches to servers and storage.

"It's not because your gear isn't up to spec or doesn't work anymore; it just doesn't do what you need it do anymore," Snyder says. "You might go buy a SonicWall firewall appliance for a T-1 at a remote office, and then two weeks later have your cable provider offer you 7M bit/sec."

Sometimes significant advances in a given tech sector provide the impetus, such as the arrival of 100M bit/sec Ethernet. While early adopters initially installed those big pipes to serve bandwidth-hungry segments, as LAN prices fell and application demand continued to advance, it didn't take long to reach the tipping point that led to wholesale network overhauls.

Technologies such as Gigabit Ethernet and 802.1X authentication may lead to a new round of infrastructure upgrades in the coming years.

VoIP is another new arrival that is spurring network overhauls. Data networks typically have to be spruced up before voice can be introduced into the traffic mix with any confidence. But while IP PBXs promise many advances, longevity — when compared with the machines they replace — isn't one of them. Our expert panel expects IP PBXs to last only 6.5 years on average, while traditional PBXs could be counted on for 8.5 or more years.

"Telecom products typically had long depreciation cycles because phones never changed, the software never changed and the application never changed," Henderson says. "But that's all changing with VoIP. I've seen some compelling new applications for Cisco and Avaya phones, but of course only if you have the phones with the cool 640x480 color LCD display. Phone features are evolving, which is cutting down on the useful lives of the equipment."

Sometimes the arrival of a new technology will encourage vendors to try to spur migra-

Life expectancy of network gear in years

All-in-one security appliances	3.5
Backbone routers	5.0
Branch-office routers	4.0
Campus wiring	9.5
Cell phones	2.0
Chassis-based network switches	4.5
Departmental copiers	4.0
Desktop monitors	4.0
Desktop printers	3.5
Digital telephones	6.0
Enterprise high-volume copiers	4.0
Enterprise storage arrays	5.0
Firewalls	3.5
Intel-architecture desktops	3.5
Intel-architecture laptops	2.5
Intel-architecture servers	4.0
Intrusion-prevention systems	3.5
IP PBXs	6.5
IP telephones	4.5
Macintosh desktops	3.5
Macintosh laptops	2.5
Mainframes	8.5
Minicomputers	7.0
NAS devices	4.0
Office multifunction printers	3.5
PBXs	8.5
PDAs	2.0
Room videoconferencing systems	5.0
SAN switches	3.0
Stackable network switches	4.5
Uninterruptible power supplies	6.0
VPN solutions	3.0
Wi-Fi net-access points	3.0
Wi-Fi switches	3.0
Windows for desktops	3.0
Windows for servers	3.5

TAKE OUR ADVICE: *Time upgrades carefully to maximize ROI and capitalize on upgrade allowances.*

tion by driving maintenance costs for the old gear through the roof. "We had to kill our Lucent PBX even though it was only 3 years old because the upgrade cost was almost equal to the original capital expenditure," Henderson says.

Vendors typically say they will support a device for two years after they stop selling it, Glasberg says. So if you tack those two years on to a normal life expectancy of five years, you get an outside range of up to seven years.

In the later stages of that cycle, vendors offer trade-in allowances as an inducement to swap up, and that can lead to some tough decisions. Jump too early, and you don't get the most out of your original investment; jump too late and you minimize the allowances or miss them altogether, Glasberg says.

Luckily, the timing usually works out, he says. "When a vendor is ready to retire something, you're probably ready to get rid of it."

Security evolution

Security products are probably not the type of equipment that buyers will hold onto for seven or more years.

Security gear gets obsolete for two reasons, Snyder says. "One, the loads we put on them increase because bandwidth usage continues to go up, and two, we stretch them by loading up more applications."

As an example of the latter, Snyder says if you bought a firewall and later decided you wanted to use virus scanning, it might not be fast enough for the new load.

As vendors add more applications and functions to their gear, the performance tends to drop, encouraging people to consider new options. Security gear in general seems to be on a faster-than-normal upgrade cycle, Snyder says.

In some cases that cycle is simply driven by technology advances. A good example is an intrusion-detection system (IDS). While IDS provided many new capabilities, intrusion prevention provided even more.

Big boxes

At the other end of the lifecycle spectrum you have big iron, such as large minicomputers and mainframes.

Even with new machines available for a fraction of the cost, customers are reluctant to replace this gear because the operating systems and applications are dyed-in-the-wool.

"There are still folks out there running VMS," Snyder says of the venerable Digital Equipment Corp. operating system. "It's not because they are in love with it, but because they have an app everyone is comfortable with and the performance hasn't degraded to the point where it's worth going through that horrible forklift upgrade."

However, with transaction volumes increasing and the size of transactions going up, companies may face the need to replace some big boxes sooner rather than later, Snyder says.

Will the upgrade conveyor belt ever stop? Probably not, but it may slow down as the technology becomes more commodity in nature, and fundamentals such as security are baked in from the start and we make progress toward true utility environments.

Until then, lace up your sneakers. ■

Something for nothing

Where to find and how to take advantage of freeware and open source applications.

■ BY DENISE DUBIE AND ANN BEDNARZ

The adage 'you get what you pay for' doesn't necessarily apply to the freeware and open source software available for download at no cost.

For many corporate IT managers, free tools provide much-needed technology in a pinch and augment existing investments in commercial products. While the nonexistent price tag initially draws people to freeware, it's the versatility the downloadable tools provide that keeps users coming back, proponents say.

Kerry Miller, network engineer at First Victoria National Bank in Victoria, Texas, says his organization recently started using a program called Argus to monitor servers and routers in the bank's network. Miller says the software application is similar to Ipswitch's WhatsUpGold commercial software, but it's free. He uses Argus in conjunction with Multi Router Traffic Grapher — a freeware staple for many IT managers — to monitor connections and bandwidth.

"Argus is something we stumbled across, and it turned out to be much better than the commercial products we looked at" for monitoring about 30 devices, Miller says. "It didn't require as much customization for us to get it working."

Miller also uses Snort intrusion-detection software and ACID, a tool for analyzing Snort event data. For Miller, ACID makes the data Snort collects more accessible to non-expert IT staff.

"If you have some networking experience, these tools definitely are easier to use, but adding the Web-based front end makes it simple to run reports on the Snort data collected," Miller says.

In some cases, freeware solves an unusual problem for users who couldn't find the same features in a commercial offering. "There is a lot of good technology out there that wouldn't draw a big enough commercial market," says Mark Douglas, vice president of engineering and operations at online dating company eHarmony.com in Pasadena, Calif. "So I can get technology that would otherwise not be available to me."

Douglas recently started using FileZilla, an FTP client program that helps him move files between data centers without adding a line item to his budget. Douglas uses many open source technologies such as Tomcat, MySQL and Apache.

"The plus with open source and freeware is that it's not just what you can write yourself to solve a problem, it's what all your peers are creating and sharing to solve universal problems," Douglas says.

Douglas uses search engines such as Google when he needs to find a specific tool. He also stays on top of what's available through RSS feeds from download sites such as freshmeat.net and SourceForge.net.

A Web search helped Rick Beebe find TTCP, a free network-throughput tester from Netcordia, when he had to figure out why two adjacent machines were experiencing vastly different transfer rates. One was getting 50M bit/sec rates and the other only 3M bit/sec, says Beebe, manager of system and network engineering for ITS-Med at the Yale University School of Medicine in New Haven, Conn.

"In this case, I ran into a weird little problem that is kind of different from what I have in-house to track it down," Beebe says. He used TTCP to test network throughput to the two machines and quickly resolved the problem.

"In a bigger use case, I may look for a commercial product, but I just searched online, found this and was able to fix the problem," Beebe says.

The availability of low- or no-cost alternatives can help users squeeze some free extras from commercial software makers. At research firm Gartner's June security event, 40% of companies with more than 500 desktops said they were getting their anti-virus vendors to throw in anti-spyware functionality for free. Gartner projects this will grow to 95% by year-end 2007.

Customers should demand that anti-spyware be provided at no additional cost when it comes time to renew desktop anti-virus contracts, the firm suggests. Threatening to go to another vendor that won't charge for anti-spyware functionality can make a difference — and it may work for getting free personal-firewall functionality as well.

Meanwhile, vendors find that offering free lightweight versions of commercial software drives future business as users grow to need greater functionality.

Gent Hito, president and CEO of /n Software, says making a free version of applications available helps his customers decide whether the technology is right for them before spending money. The company doesn't charge for its IP*Works! EDI AS2 Connector, a lightweight application for sending and receiving electronic-data-interchange documents over the Internet via AS2. Companies with an existing business-to-business infrastructure can use the adapter to communicate with a single trading partner for free; to communicate with more than one requires buying a license.

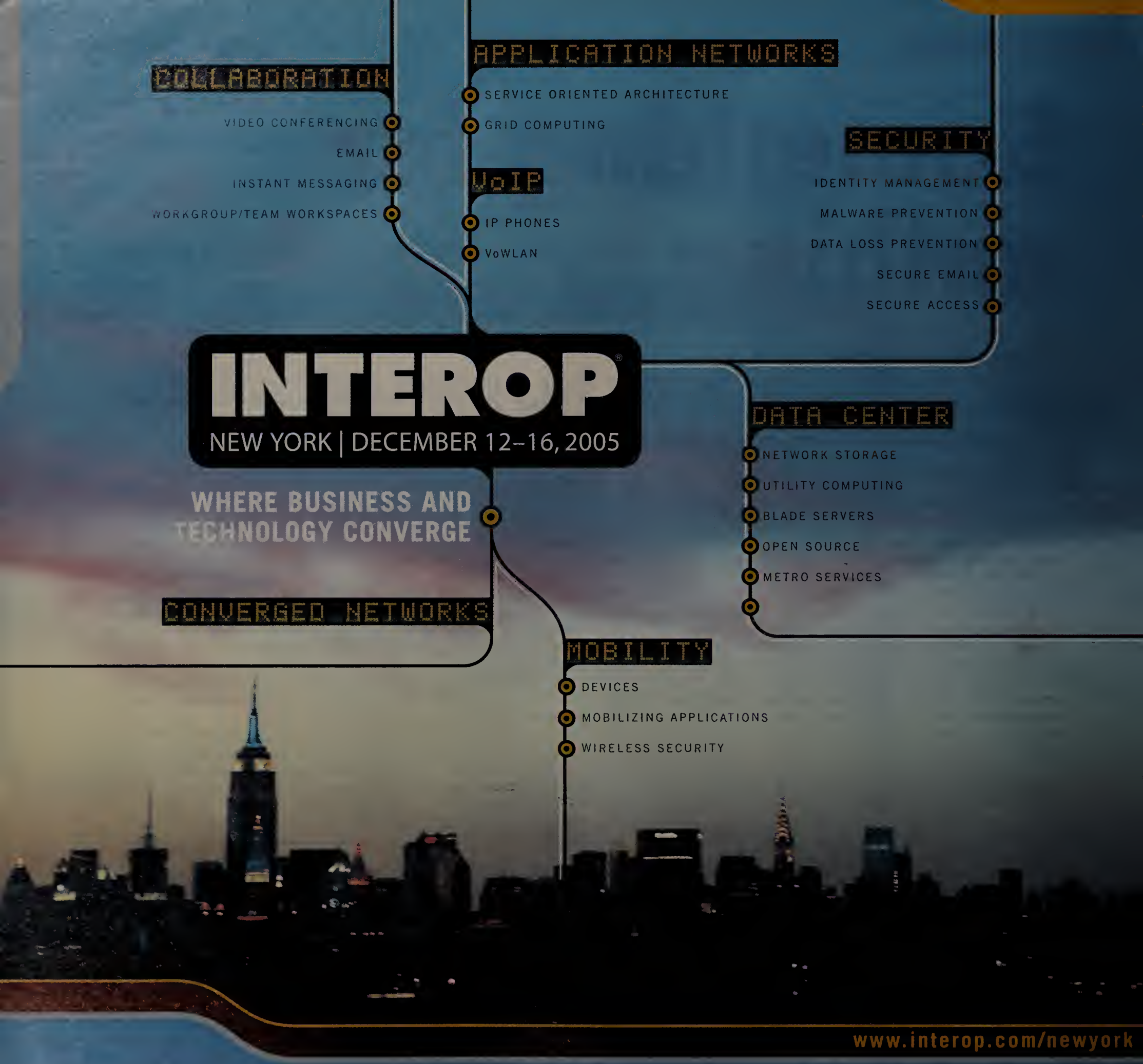
/n Software hasn't officially announced the new tool but word of mouth is spreading fast, Hito says. ■

Bargain shopping

A sampling of free stuff, and where to find it.

Tool	Type of application	Download from
Argus	Network- and system-monitoring software	argus.tcp4me.com
FileZilla	FTP client and server	Filezilla.sourceforge.net
IP*Works! EDI AS2 Connector	Application for sending and receiving documents via AS2	www.nsoftware.com/ipworks/edi/connector/
OpenNMS	Open source network-management platform	www.opennms.org
TTCP	Network-throughput tester	www.netcordia.com/tools/tools-ttcp.shtml

TAKE OUR ADVICE: *Don't be shy about pushing vendors for free or discounted software by mentioning competing open source tools.*



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Indiana University goes wireless

University network exec shares experiences and challenges of rolling out wireless across two campuses.

■ BY CAROLYN DUFFY MARSAN

INDIANAPOLIS — ROLLING OUT WIRELESS Internet access is tricky, especially when it comes to finding the best locations for wireless gear. Even more important is making sure that wireless communications are secure. *Network World* spoke with Indiana University Acting Associate Vice President for Telecommunications Mark Bruhn about these and other challenges that Indiana University faced in deploying nearly 1,600 wireless-access points across its two main campuses. Here are excerpts from the conversation:

Mark Bruhn, acting associate vice president for telecommunications at Indiana University, has deployed wireless for 126,000 end users.

JOHN BRAGG

Can you describe Indiana University's network infrastructure?

We have responsibility for the core campuses at Bloomington and Indianapolis. We have about 3,000 acres of campus at Bloomington and 600 acres in Indianapolis. There are hundreds of buildings. We run the core network to all those buildings. We also run the statewide network that connects eight regional campuses to Indianapolis and to the outside world.

The ballpark number of users is 126,000. That would include 98,000 to 99,000 students, 5,000 faculty and another 10,000 staff. We also have a category of "other users," such as contract programmers.

The number of users is getting higher because we're attempting to better serve our admitted students and even prospective students. We have students who are no longer enrolled but still have some continuing tie with the university, whether they owe a bursar bill or have incompletes. That number of 126,000 is going to grow as we take into consideration these peripheral relationships. Identity management is a huge area for us. When we install wireless, we want to make sure that the people who are using our wireless network are the people who are affiliated with Indiana University and should be allowed to use that resource.

Where does the wireless-access piece fit in?

All over the place. We have all of our administrative and academic buildings 100% covered by wireless, although we do identify dead spots periodically. On the Bloomington and Indianapolis campuses, about 85% to 90% of the outside areas that matter are covered by wireless. We've been looking at areas where students and faculty congregate and where wired access isn't possible.

At some point, we may think we've got all the outside areas that matter covered, but then certainly there will be areas brought to our atten-

See Bruhn, page 55

TAKE OUR ADVICE: *My advice is that you shouldn't roll out wireless access without encryption.*

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Bruhn
continued from page 53

tion by faculty and students, and we'll have to go out and take a look. Wireless in residence halls hasn't been a high priority because every room has at least one data jack and all the common areas have data jacks. We're doing the residence halls last because the students already have connections.

When did Indiana University begin its wireless rollout?

Early 2003. We had a few hundred — maybe 300 or 400 — wireless-access points on the Bloomington campus. My predecessor told the telecom staff that we were going to double that number over the space of a year or 18 months. And we did. The last number I saw was 978 wireless-access points at Bloomington and 600 at Indianapolis.

How did you select the equipment?

We standardized on Vivato outside, and the equipment inside was Lucent/Orinoco [now Proxim]. We engaged a consulting company to advise us and do some preliminary site surveying. After that engagement was complete, and we had a good idea of how many access points we would initially need and where they would be placed, we released a request for proposals for hardware.

Did you do this wireless rollout with your own staff or did you contract it out?

All of it was done internally. One of the things we dealt with was that you can place a little piece of equipment in a ceiling panel just about anywhere, but then you've got to get wiring to it. The network cabling wasn't overly difficult, but you have to get power to those things. The areas where they don't have ready access to power, they've been using Power over Ethernet, which has been outstanding, because then you run the one cable and you don't have to worry about looking around for a conduit to tap or a box.

How much have you spent on wireless-access initiatives during the last 18 months?

The total amount was just short of $1 million. We estimate that the cost of maintenance and life-cycle replacement amounts to about $250,000 per year. We're on a three- to four-year replacement cycle.

JOHN BRAGG

Think about how you're going to feel if your corporation has a wireless network and that wireless network is used to perpetrate a heinous crime. WEP is not a good solution. VPNs are a reasonable solution.

Describe some of the rollout's challenges.

Getting the wires from a switch to the wireless access point. We've got older buildings, especially in Bloomington. The architects don't want you to run an ugly conduit on the outside of a hallway, so you have to be a bit more creative. The network connection and the power continue to be a challenge. When you look at a site survey, that's obviously one of the things you look at first.

Coverage is another thing. In some of these buildings you have to make sure you place these things very carefully. So you do your site survey and you put them up, and then you have to move them around to make sure you get the most coverage out of one wireless-access point. You want to get the coverage as dense as you can but avoid overlap.

Microwaves are an issue. We have microwave ovens in little kitchens in some departments. You have to make sure that's taken into account.

One of the biggest things, though, that we had to worry about is security. Once wireless is pervasive, how do we make sure that university resources are not being used by someone who is not eligible? The solution that we settled on is a set of VPN servers. To access our network, you have to provide your university credentials. You have to use your network ID and password to authenticate to the VPNs, and then you are assigned a routable address.

Did you have any pushback from users about needing to log on and type in a password to get wireless access when they don't have to do that for wired access?

No. The wireless network was new to many, many users, and authentication came with it. We used their university credentials, so they didn't have to memorize another user name and password. I think we're going to start getting a bit more pushback when we start doing authentication with the wired network, because people are used to not having to do that process.

How do you handle guest users on the wireless network?

If a visiting scholar comes to a particular department for a few days, we can issue an Indiana University credential. We call them affiliate accounts. We built a system for issuing and tracking affiliate accounts. It was based on our VPN servers. What we discovered is that VPN-over-VPN connections don't work. When we were authenticating our guest credentials with our VPNs, and the guests needed to access their VPNs at their home organizations, they were establishing another VPN connection on top of our VPN connection, and that was bad news. So we are rolling out a different authentication scheme for guest users. We are using HP 740 Access Control Servers, and we are authenticating using RADIUS-based credentials instead of VPNs.

What have been the biggest benefits of the wireless rollout?

Wireless made us rethink some security issues, for example, the guest credentialing scheme and the new user authentication scheme. We knew we needed these schemes for wireless, and then that smoothed the process for rolling them out on the wired network.

A few years back, there was a major university that announced it was the first to cover its campus with ubiquitous wireless. But the university had no protection on its wireless network.

Once it made that announcement, it ended up offering half the community free Internet access. We knew we weren't going to do wireless like that. That's why we rolled out our VPN simultaneously with our wireless access. ■

Getting personal: Mark Bruhn

Name:	Mark Bruhn
Titles:	Acting associate vice president for telecommunications and chief IT security and policy officer.
Organization:	Indiana University
Responsibilities:	Maintain, operate and secure the network infrastructure and key network applications including data, video and voice services.
Annual network budget:	$10 million for e-mail, video and other data applications; $17 million for voice services.
Staff size:	115
Previous jobs:	Bruhn has been at Indiana University since 1985, serving as IT policy officer, disaster-recovery project leader, deputy director of the computer security office and information security officer. Previously, he was in the U.S. Air Force.
Education:	Bruhn holds a bachelor of science degree in computer science from Park College and CISSP and CISM certifications.

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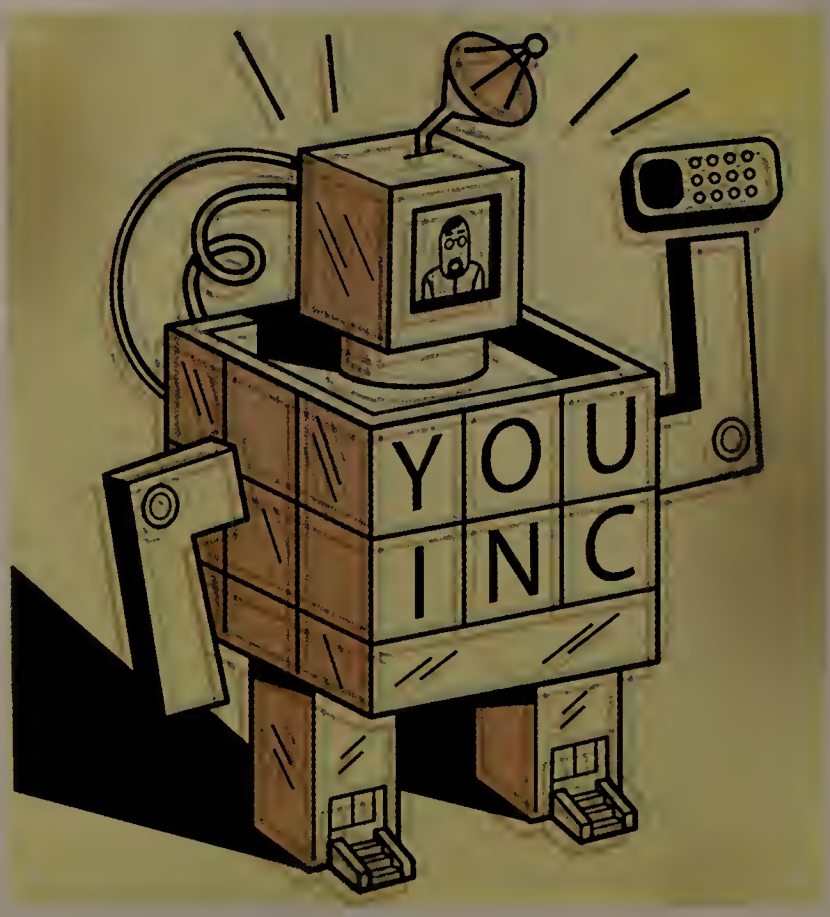
Taking charge

Tips and tricks for tackling your responsibilities as a manager of people, projects and vendors.

BY AMY SCHURR

AS IF KEEPING THE NETWORK AND SYSTEMS HUMMING along isn't enough to handle, IT leaders also must manage staff, negotiate with vendors, oversee projects and deal with whatever else is thrown at them.

Here are some tips from IT executives and management experts for keeping employees skilled and satisfied, striking deals with vendors and service providers, and guiding rollouts big and small.



Staff management

Today's IT leaders are charged with managing a virtual network of resources, says Mike Czinege, CIO of Applebee's International of Overland Park, Kan. For example, Czinege's virtual workforce includes about 90 internal part-time and full-time IT employees, independent contractors, offshore technologists and software vendor consultants.

He says that today's IT executives aren't evaluated solely on whether they get their projects done. "They're evaluated on how well they understand the skill sets, what skill sets they have, and how to look outside and find the skill sets they need, anywhere, at any time, and at the right cost."

Czinege stresses that IT leaders must be clear about their strategic sourcing objectives and continually develop employees, putting an equal amount of responsibility for career development on workers. "Allow them to work with you to develop a plan to enhance their career opportunities internally, and the reality is externally, too," he recommends.

As for your own skills, continue to hone your business savvy. "Don't underestimate the power and influence of the change in requirements for deeper business insight and understanding," says Diane Morello, a vice president for Gartner. "CIOs and their IT managers need to understand that this change is real, it's coming, and if managers themselves don't believe it's happening they put their organization and themselves at risk."

Vendor negotiation

When it's time to sign on the dotted line, make sure the contract gives your business flexibility. This is especially true of voice and data deals in a time of carrier consolidation and emerging services.

"We have seen so many instances where customers have been relegated to making network decisions based on their contract terms and conditions as opposed to supporting business objectives," says Dave Muller, COO of Telwares, a Vercuity company specializing in telecom procurement and contract negotiations in Destin, Fla.

Telwares recommends setting your overall contract commitment at 65% or less of your expected telecom expenses. If you intend to purchase $5 million in services from a carrier over the next three years, for instance, negotiate an overall commitment of $3.25 million or less.

"The carrier will be continuously in a position of potentially losing 35% of its customer revenue base. I can think of no better way to ensure your carrier maintains its value as a vendor to your company," Muller explains. Along with leverage, you'll gain flexibility to switch traffic to another carrier if necessary.

Jim Medeiros, vice president of IS for United Parcel Service (UPS) in Atlanta, adds, "You need to be vigilant about separating what your organization needs from what the vendor wishes to sell to you."

For example, when UPS recently completed a major software contract, the vendor wanted to throw in products that had questionable cost benefit. Senior management from both companies had to get involved to differentiate the products UPS could justify, negotiate a unique contract that the vendor's local sales team wasn't empowered to offer and agree to a timeline for the deal.

Project management

If you don't have a big backer for an IT project, don't bother, according to Gopal Kapur, president of the Center for Project Management in San Ramon, Calif. The sponsor should be at the executive level and have the requisite authority and resources. "Without the guidance, leadership, commitment and authority of a skilled sponsor, project success will continue to be a shot in the dark. The chances of project success are close to nil," he says.

Kapur cites Cedars-Sinai Medical Center's infamous $34 million computerized physician order-entry system, which was scuttled just three months after rollout. The reason was a lack of high-level medical professional sponsorship.

Once you have senior management's blessing, strike while the iron is hot, advises Kevin Lopez, the national telecom manager who spearheaded accounting firm Grant Thornton's VoIP rollout of Avaya S8700 PBXs last year.

"Always stay nimble and ready to move, gather all the information required, communicate and just do it," Lopez recommends. These practices helped him handle the rollout of Modular Messaging to 4,000 people in one weekend without any major problems. He and three colleagues fielded all the help desk calls the following Monday and handled any other issues that arose. ■

TAKE OUR ADVICE: *If you don't have C-level backing for an IT project, don't even attempt it.*

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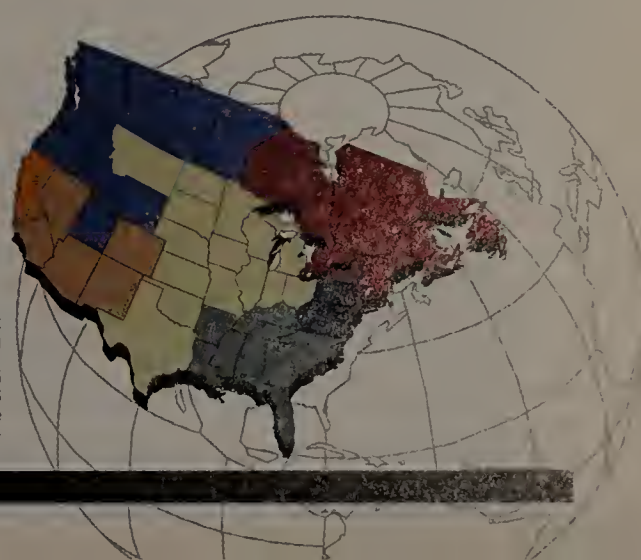

BACKSPIN Mark Gibbs

IT things to be thankful for . . .

Seeing as how Thanksgiving has just shot past and your nominations for the Golden Turkey Awards are still flooding in (make sure you vote at www.networkworld.com, DocFinder: 9966), it may be a good time to consider what we are thankful for. So in my role as the Rev. Gibbs of the Church of IT, I will lead us in prayer:

Our network technologies which art in the enterprise as well as in the home, hallowed be thy implementation. Thy features come. Thy operation be done in the real world as they were done in the brochure. Give us this day our product's ROI. Forgive us for not reading the manual, as we forgive those who made it unreadable anyway. Lead us not into desperation but deliver us from the support line. For thine is the information, the data and the metadata, at least until lunch time. Our network.

We are thankful that Sony is about to get smacked around in the courts for its arrogant acts and behavior (see BackSpin and Gibbsblog). Had it got away with its nefarious plans, the door would have been opened for the Motion Picture Association of America and the Recording Industry Association of America to act in similarly aggressive and restrictive ways. Given that these groups have a number of politicians in their pockets, we can all feel thankful that the public got this technology issue and responded appropriately.

We are thankful that VoIP is inexpensive, because if we were paying much more than the rip-off would be really distressing. Following my recent BackSpin columns on the topic of consumer-grade VoIP I had a lot of feedback and the readers had remarkably different experiences: Those on cable seemed generally happy and those on DSL seemed mostly unhappy.

The theory that you can improve the experience by getting VoIP from your DSL provider apparently doesn't hold water. Reader Walt Tetschner wrote, "I've used Verizon VoiceWing . . . for the last seven months. My conclusion is that VoIP is an absolute fraud!" See Gibbsblog for more on Tetschner's comments. I will most likely switch back to plain old telephone service until reliable consumer-grade VoIP appears, because I need to keep my wife happy and she is now not happy with Vonage.

We are thankful to discover that the wretched Digital Millennium Copyright Act (DMCA) is flawed. A summary report from the University of Southern California Law School's Intellectual Property Legal Clinic and the University of California, Berkeley's Boalt Hall examined more than 900 take-down notices (formal cease-and-desist requests from copyright holders) sent to ISPs and search engines. They found that a significant percentage were not clear DMCA violations or clearly illegal. If there was ever proof that the DMCA is flawed, abused and a bad piece of legislation, this report is it. We will be thankful when the DMCA is overhauled.

We are thankful that the video iPod has finally been launched so that we don't have to hear any more theorizing about an iPod that does video.

We are thankful that TiVo exists because we spend way too much time in front of the PC and without it we'd usually miss "The Daily Show."

We are thankful that open source is starting to get the attention it deserves. Another few hundred years and we will all be wondering why we ever had to buy proprietary operating systems and applications.

We are thankful that Microsoft is a little nearer to the release of Windows Vista because we know the innumerable bugs, gotchas and other problems involved in migrating to this new operating system will assure the IT industry a few more years of steady employment.

It is for these and the many other blessings of our industry that we give thanks. At least until next Monday.

What are you thankful for? Tell backspin@gibbs.com and check Gibbsblog (www.networkworld.com/weblogs/gibbsblog/).

Paul McNamara

NETBUZZ News, insights and oddities

There's just no figuring out that Internet

Now the Internet is slowing down snail mail?

Heaven knows the 'Net gets blamed for everything this side of teenage acne, but this time the charge appears to carry considerable weight — both figuratively and literally. What makes the revelation particularly interesting is that it is a sterling example of conventional wisdom proving to be more conventional than wise when applied to the Internet. (You'll have a chance to offer your own examples later.)

It wasn't long ago that the emergence of e-commerce was seen by most as the beginning of the end for the mail-order catalog. No need to keep killing all those trees once everyone gets in the habit of ordering everything they need and want online. If I didn't write that myself, I certainly bought into the idea. It was just stone-cold obvious.

Seems most everyone was wrong. Not only has the 'Net not deep-sixed those catalogs, it has given the once moribund medium new life. The catalogs are driving more traffic online . . . and more traffic online is motivating retailers to mail out more catalogs.

Ask any mail carrier. One TV news report mentioned that the catalog load has so weighed down some letter-luggers that routes are taking as much as an hour longer than usual to complete.

The raw numbers are staggering. According to the Direct Marketing Association, 18.1 billion mail-order catalogs were delivered to U.S. households in 2004, an increase of 1.5 billion over 2002. It may surprise some of you to learn that of that extra 1.5 billion, approximately half were delivered to my house.

Journalists are cautioned not to draw sweeping conclusions from their own narrow experiences, but I'm going to laugh at caution here. This catalog avalanche is indeed moving on down the mountain — and it's the fault, if you will, of online shoppers.

Mrs. Buzz does an inordinate amount of our household shopping online (as would you if your alternative was chasing 4-year-old triplets through the local mall). In fact, the UPS guy shows up at our door so often I felt obliged to invite him to Thanksgiving dinner — the kids figure he's just another uncle anyway.

And the catalogs? Don't you dare call them "junk mail" within earshot of my wife. They are her sports section . . . and who am I to judge? The numbers of catalogs seem not so remarkable as they hit the mailbox three, four, five at a shot. No, where the sheer volume becomes most noticeable is at their designated collection depot, a corner of our bedroom floor. Let's just say I hope the guy who built our house didn't skimp on the joists.

E-commerce will kill the catalog industry? Right, nice call.

So what else have we all — notice the blame-sharing here — been dead wrong about when predicting the future impact of emerging technology?

How about cars? First time I heard an expert expound on the "brutally efficient markets" that would spring up around online car shopping, it sounded like a slam-dunk — and very bad news for the profit margins of those who sell cars. That was six or seven years ago — and the majority of us are still kicking tires. (For an academic view of why that is, check out this previous 'Net Buzz column at www.networkworld.com, DocFinder: 9949.)

Or consider the end of business travel: It's been right around the corner for as long as the golden age of videoconferencing has been right around the corner. That's a long, long time.

The federal government's Do Not Call list was absolutely, positively going to mean curtains for the telemarketing industry — except that it didn't.

Now it's your turn. What is your favorite example of conventional wisdom proving all out of whack?

Send your nominations to buzz@nww.com or post them online in our forum at DocFinder: 9968. The full 'Net Buzz archive can be found at DocFinder: 1031.

WE EAT WORMS FOR MONEY.

Seriously.

You have enough on your plate already.

Yet e-mail security keeps getting more out of control. Worms, spam, user licensing, viruses, spyware, pornography, malware, updating. It's an expensive and endless headache. And the stakes get higher every day. Today, 8 out of 10 businesses get hit.[1] And e-mail viruses alone are responsible for more than $10 billion in lost productivity.[2]

It's time this problem got solved. Not just for big businesses, but for any size business. Not just for this platform or that. And not by making already overworked IT people run CDs from PC to PC during virus frenzies. It's time for something new.

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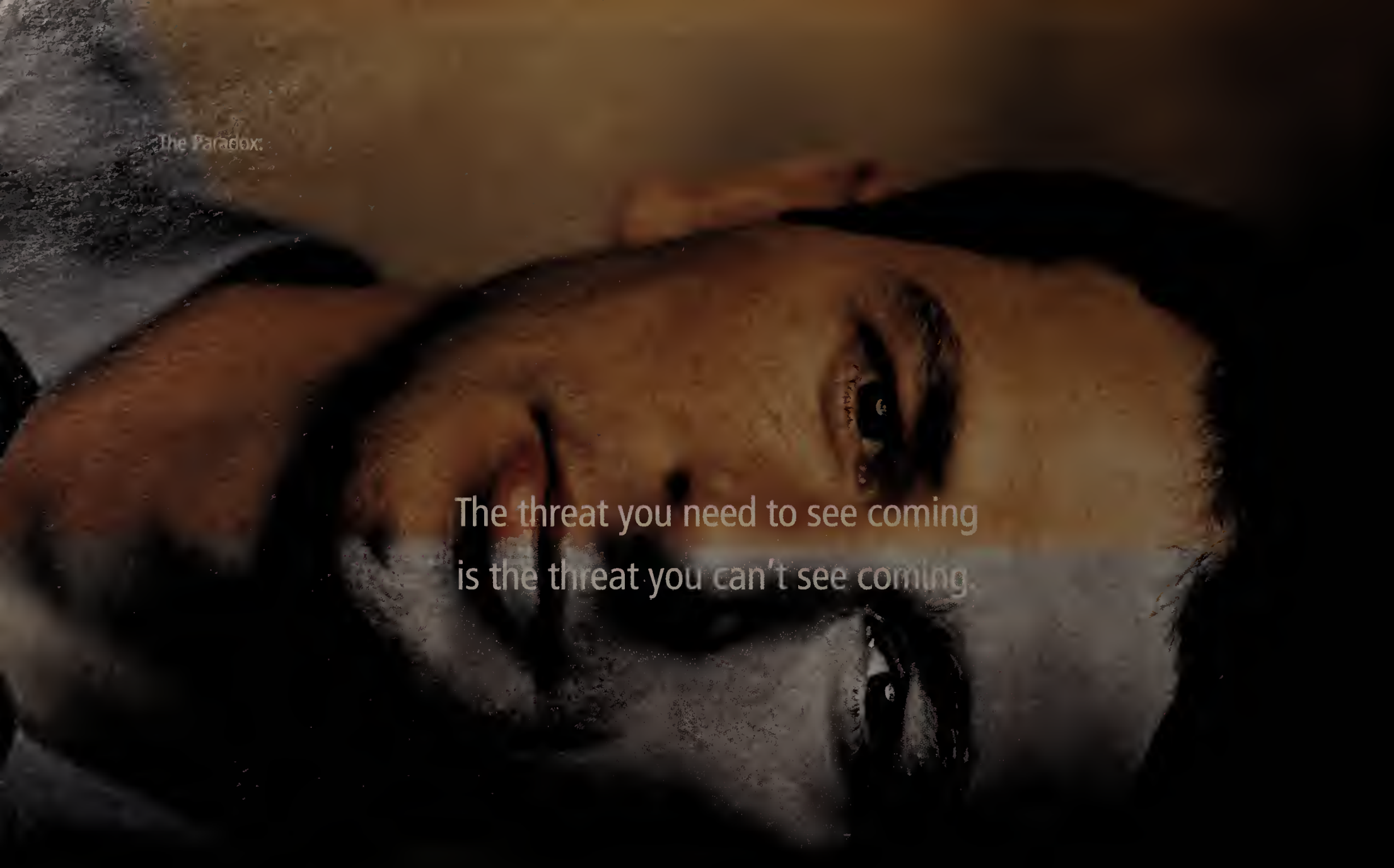

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